DISSERTATION ON

"A STUDY TO ASSESS THE EFFECTIVENESS OF HONEY ON CONSTIPATION AMONG ANTENATAL MOTHERS IN THIRD TRIMESTER ADMITTED IN INSTITUTE OF OBSTETRICS AND GYNAECOLOGY AND GOVT HOSPITAL FOR WOMEN AND CHILDREN, CHENNAI."

MSc (NURSING) DEGREE EXAMINATION
BRANCH –III OBSTETRICS AND GYNAECOLOGICAL NURSING
COLLEGE OF NURSING
MADRAS MEDICAL COLLEGE, CHENNAI – 03.

A dissertation submitted to
THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY
CHENNAI – 600 032.

In partial fulfillment of requirements for the degree of
MASTER OF SCIENCE IN NURSING

APRIL 2016

"A study to assess the effectiveness of honey on constipation among antenatal mothers in third trimester admitted in Institute of Obstetrics and Gynaecology and Govt hospital for women and children, Chennai."

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CERTIFICATE

This is to certify that this dissertation titled **" A study to assess the effectiveness of honey on constipation among antenatal mothers in third trimester in Institute of Obstetrics and Gynaecology and Govt hospital for women and children, Chennai"** is a bonafide work done by Mrs.Kaliyaperumal Ananthi, II year MSc (N) student, College of Nursing, Madras Medical College, Chennai-03, submitted to the Tamil Nadu Dr. M.G.R. Medical University, Chennai, in partial fulfillment of the university rules and regulations towards the award of the degree of Master of Science in Nursing, Branch – III Obstetrics and Gynecological Nursing, under our guidance and supervision during academic period from 2014-2016.

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ACKNOWLEDGEMENT

Kaalaththi Naarseydha Nandri siridheninum

Gnaalaththin Maanap Peridhu.

-Couplet -102, Thiruvalluvar

First of all, I wish to acknowledge my sincere and heartfelt gratitude to the **Almighty god** for life, health, energy and for being with me and guiding me to reach my professional goals.

Nothing concrete can be achieved without an optimal inspiration during the course of work. There are several hands and hearts behind this work to bring it to this final shape for which I would like to express gratitude.

The essence of all beautiful art is gratitude. Gratitude can never be expressed in words but this is only deep perceptions, which make the words flow from one's inner heart.

The encouragement is a booster of the human life without this no one can achieve easily. I thank everyone encouraged me to complete this task effectively.

I wish to express my sincere gratitude to our respected **Dr.R.Vimala, M.D, Dean, Madras** Medical College, Chennai for providing necessary facilities and extending support to conduct this study.

I wish to express my sincere thanks to **DR.V.Kumari, M.Sc.(N)., Ph.D., Principal,** College of Nursing, Madras Medical College, Chennai-3. The success of my work possible by excellent guidance, affectionate and valuable suggestions helped in the fruitful outcome of this study. I express my heartfelt gratitude that made research a real experience.

I express my sincere gratitude to **Dr.R.Lakshmi,M.Sc(N), Ph.D,MBA.,** Additional Director of Medical Education (Nursing), who guided me in selection of research topic.

I am grateful to **Mrs.J.S.Elizebeth Kalavathi, MSc(N)., Class Coordinator,** HOD, Department of community health nursing, College of Nursing, Madras Medical College, Chennai constant support and guidance throughout the study.

I express my sincere gratitude and deep sense of indebtedness to my esteemed teacher **Mrs.V.Jayanthi M.Sc (N).,** who worked as a Lecturer, Department of Obstetrics and Gynaecological nursing,

It is a great privilege to thank and **DR.S.Baby Vasumathi, M.D, D.G.O**, **Director,** Institute of Obstetrics and Gynecology and Govt hospital for women and children, for granting permission to conduct the study.

I express my sense of gratitude to **Dr.K.Priyadarshini, M.D**., **DGO**, Assistant Professor, Institute of Obstetrics and Gynecology, Chennai, for her valuable suggestions and guidance to complete this study.

I extend my thanks to the **Ethics committee members** for their healthy criticism, supportive suggestions which molded the research.

I express my thanks to **all the faculty members** of the College of Nursing, Madras Medical College,Chennai.

It is my immense pleasure and privilege to express my gratitude to **Mrs.Kangavalli.P, M.Sc(N)., Reader in Obstetrics & Gynecological nursing** , Madha college of nursing, Chennai-89 for validating this tool.

It is a pleasure to express my deep sense of gratitude to **Mr.S.Valarmathi,MSc, M.Phil., Research officer, the TamilNadu Dr.MGR Medical university,** for suggestions and guidance in statistical analysis.

I express my heartfelt gratitude to the **Nursing superintendents and Staff nurses,** of IOG, Chennai, for their co-operation during the study. I honestly express my sincere thanks to **All participants** in this study greatly indebted for their patience, co-operation and giving their valuable acceptance to participate.

My heartfelt thanks to my beloved **classmates** and **friends** for their enthusiastic help and support for the successful completion of this study.

Last but not least, I would like to express my deepest love and gratitude to **my parents, husband, lovable kids S.Jai Akaash, S.Aswin, my sisters, friends, relatives, and well wishers** for their encouragement, loving support throughout my carrier and timely help to complete the study successfully.

I thank one and all who directly or indirectly helped me in successful completion of this study and who came on my way to success.

Abstract

Title

"A study to assess the effectiveness of honey on constipation among antenatal mothers in third trimester admitted in Institute of Obstetrics and Gynaecology and Govt hospital for women and children, Chennai."

Constipation is a common minor disorder of pregnancy. The approach to constipation in pregnancy is similar to that used for the general population, with special attention to safety of medications.

Need for study

Pregnancy is one of the most exciting and important events in each woman's life. During this period the pregnant women may have some minor disorders; among that constipation is a more common troublesome one. The investigator aimed to bring a cost effective home remedy for the discomfort experienced by the antenatal mothers.

Objectives

- To assess the level of constipation among antenatal mothers in third trimester in both control and experimental group.
- To compare the level of constipation among antenatal mothers in third trimester in pre test and post-test among experimental and control groups.
- To evaluate the effectiveness of honey on constipation among antenatal mothers in third trimester in experimental group.
- To find the association of level of constipation with selected demographic variables among the antenatal mothers in third trimester.

Research Methodology

- Research approach: Quantitative approach
- Study setting: Antenatal wards of Institute Of Obstetrics and Gynaecology,
- Study design **:** Quasi experimental study design

- Study population: Antenatal mothers in third trimester with constipation admitted in antenatal wards in IOG.
- Sample size: Comprised of 60 antenatal mothers in third trimester in which 30 sample in each control and experimental groups.
- Sampling technique: Purposive sampling technique
- Data collection procedure: For experimental group 10 ml of honey in 100 ml of warm water was administered twice a day for 3 consecutive days for the subjects having constipation and for the control group routine care was given.

Data analysis: The data were analyzed by descriptive statistical methods like mean, standard deviation, frequency percentage and inferential statistical methods like independent t-test, chi square and t-test.

Study results: The comparison between pre-test and post-test among experimental group, t=6.75 and it was statistically significant with p value=0.001. Mean difference between pre-test and post-test among experimental group; 22.5% (95% CI 20.5%–24.5%). shows the effectiveness of honey on constipation among antenatal mothers in third trimester.

Discussion: In post-test constipation score reduced 22.5% with p value=0.001 in experimental group and 5.8% reduced with p value=0.53 in control group. There is statistically significant difference in level of constipation among experimental and control group.

Conclusion: Honey administration for constipation is easy to implement, safe for pregnant women, non-invasive, and low-cost. The excavated results supported the incorporation of complementary medicine to relieve constipation among antenatal mothers.

❖ **Key words**: Pregnancy, Constipation, Honey, Effectiveness

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CHAPTER -I

INTRODUCTION

"The most ambitious dream of a woman in her life is giving birth

Motherhood is... difficult and... Rewarding."

– Gloria Estafan

Every pregnancy is unique experience for the women and each pregnancy that the women experience will be new and different. Pregnancy care is one of the wonderful and noble services imposed by nature. The objective of obstetrics is that every pregnancy should culminate in healthy baby and healthy mother. The most ambitious dream of a woman in her life is giving birth[1].

During pregnancy there is progressive anatomical, physiological and biochemical changes in all systems of the body. These physiological changes are the normal adaptation to accommodate as well as to promote the growth of embryo or fetus[2]. Hormones play an important role in changing maternal physiology during pregnancy largely orchestrated by the endocrine system through the hormones; these changes arise in response to maternal adaptation to the increasing demands of the growing fetus. Anatomical and physiologic changes also take place in each organ of the gastrointestinal system.[3]

During pregnancy the motility in the gastrointestinal tract is decreased, resulting in a prolonged gastric emptying time and a longer intestinal transit time. A generalized relaxation of the smooth musculature of the gastro intestinal tract occurs under the influence of progesterone. Pregnancy and the postpartum period are often associated with many gastrointestinal complaints, including nausea, vomiting, and heartburn; however, the most troublesome complaints in some women are defecatory disorders such as constipation and faecal incontinence. These disorders are often multi factorial in etiology, and many studies have looked to see what risk factors lead to these complications[4].

Constipation is a common minor disorder of pregnancy where a woman has difficulty in passing dry stool or unusually dried stool, irregular and infrequent or difficult evacuation of the bowels[5]. Constipation during pregnancy can also cause haemorrhoids, permanent impairment as there is evidence that straining to defecate can damage the pudendal nerve and impair the supportive function of the pelvic floor musculature while it is also an important factor in the development of uterovaginal prolapse[6].

The approach to constipation in pregnancy is similar to that used for the general population, with special attention to safety of medications. Current recommendations include dietary manipulations to increase the consumption of fibre. It is also recommended to increase fluid intake and include a moderate amount of daily exercise[7]. If these are ineffective, laxatives are the second line of therapy, stimulant laxatives were more effective (Peto Odds Ratio 0.30; 95% CI 0.14–0.61), although stimulants were associated with significantly more abdominal pain and diarrhoea[8].

Almost many of pregnant women get constipated at some point. Progesterone and somatostatin may also inhibit the release of motilin, a peptide hormone that normally inhibits smooth muscle. Moreover, relaxin, a polypeptide that inhibits myometrial contraction during pregnancy, also appears to inhibit the smooth muscle of the gastrointestinal tract. This means that food passes through the intestines more slowly. The problem may be compounded later in pregnancy by the pressure of growing uterus on the rectum[9].

According to American Pregnancy Association approximately 6 million pregnancies occurs every year throughout the United States. According to National Health Interview Survey reports about 4.4 million pregnant women complains of constipation[10]. According to **Cullen *et al.*** (2007), several studies have demonstrated that the increase of colonic water absorption during pregnancy could lead to the formation of small and hard stools, according to

total colonic perfusion studies, aldosterone increases water absorption in pregnant women[11].

Iron supplements, particularly in high doses, can make constipation worse. Other important causes for constipation during pregnancy include dietary factors, such as lack of dietary fiber, particularly non-starch polysaccharide (NSP) and water. Fiber binds water but this property is lost when it is split by colonic bacteria. Certain types of fiber (e.g. bran) are poorly splitted by bacteria and so retain their ability to bind water. Dietary fiber increases stools bulk, weight and frequency, and reduces the mean transit time[12].

Light physical activity appears to promote regular bowel movements during pregnancy; therefore a sedentary lifestyle may likewise cause or exacerbate constipation[13]. Treatment typically consists of dietary measures, such as increasing fiber and fluid intake, behavioural changes, such as physical activity, and the use of probiotics or laxatives[12].

A systemic review conducted by **Bradley *et al. (2007)*** in Springer, Cochrane explained the importance of probiotics in treating constipation among pregnancy[14]. ***Milliano et al.*** **(2012)** probiotics that alter the colonic flora can also improve bowel function. Also in several studies, probiotics have shown to be safe for both mother and fetus during pregnancy[15]

Honey is the substance which has probiotics to treat constipation and honey is widely used to treat constipation. Honey has had a valued place in traditional medicine for centuries[16]. Honey has always been a very popular culinary delicacy as well as an important medical remedy for many millennia. Across the globe, our ancestors seemed to be well aware of the many health benefits of honey. In India, honey is an important part of Siddha and Ayurveda the ancient, traditional systems of medicine. Several other cultures have also used honey for various medical purposes. Today, honey is the focus of much scientific research by the medical community[17].

Composition of honey[18]

The Composition of Honey		
NUTRIENT:	**Average amount in 100g of honey**	**Range**
Water	17.1 g	(12.2-22.9 g)
Carbohydrates (total)	82.4 g	
Fructose	38.5 g	(25.2-44.4 g)
Glucose	31.0 g	(24.6-36.9 g)
Maltose	7.20 g	(1.70-11.8 g)
Sucrose	1.50 g	(0 50-2.90 g)
Proteins, amino acids, vitamins and minerals	0.50 g	
Energy	304 Kcal	
Vitamins	**Amount in 100g of honey**	**U.S. RDI**
Thiamin	< 0.006 mg	1.5 mg
Riboflavin	< 0.06 mg	1.7 mg
Niacin	< 0.36 mg	20.0 mg
Pantothenic acid	< 0.11 mg	10.0 mg
Pyridoxine (B^6)	< 0.32 mg	2.0 mg
Ascorbic Acid (C)	2.2 -2.4 mg	60.0 mg
Minerals		
Calcium	4.4-9.20 mg	1000.0 mg or 1 g
Copper	0.003-0.10 mg	2.0 mg
Iron	0.06-1.5 mg	18.0 mg
Magnesium	1.2-3.50 mg	400.0 mg
Manganese	0.02-0.4 mg	
Phoshorus	1.9-6.30 mg	1000.0 mg or 1 g
Potassium	13.2-16.8 mg	
Sodium	0.0-7.60 mg	
Zinc	0.03-0.4 mg	15.0 mg

Few complementary therapies supplement the probiotics which is used to treat constipation. Honey is a natural laxative due to its moisturizing properties**.** It can be taken daily to prevent as well as to treat constipation. Honey is highly nutritious, it has traces of minerals, vitamins and antioxidants which destroy free radicals and delay ageing. In short, it is a safe and wholesome food for old, children and adults. Honey is a plant by-product and used medicinally around the world. Honey is also an energizer, helping workers and athletes overcome fatigue and retain energy[18].

1.1 Need for the study

Pregnancy is one of the most exciting and important events in each woman's life involving many factors that should be considered in advance such as changes in diet habits and lifestyle that may be worked out.

While constipation is a common complaint among the general population, some patients with no history of bowel problems develop constipation for the first time during pregnancy while others already suffering constipation prior to their pregnancies will often find their symptoms worsen while pregnant[11]. Although a definitive cause for this disturbing complaint remains unknown, the causes of constipation during pregnancy are likely to be multi factorial as hormonal changes and mechanical changes play an important role, as well as dietary factors and lifestyle issues.

Bradley, Catherine S.MD, MSCE et al. **(2007)** conducted a study in North America to prospectively estimate constipation prevalence and risk factors in pregnancy. They enrolled healthy pregnant women in this longitudinal study during the first trimester. Constipation prevalence rates were 24%, 26%, 16% and 24% in the first, second, and third trimesters and 3 months postpartum, respectively[14].

Vazquez J. **(2010)** conducted a study on constipation, haemorrhoids, and heartburn in pregnancy in Los Angeles[19]. They reported constipation in pregnant women varies between 11% and 38%.

The Indian Society of Gastroenterology Task Force 53% of pregnant women are suffering from constipation 77% suffering from incomplete evacuation and 46% suffer from straining at stools [20].

The Hippocratic principle of doing no harm to the patient is particularly relevant to the selection of therapeutic agents, as most have untoward side effects. Honey has been linked with digestive health since ancient times. Early civilisations such as the Romans and Arabic empires used honey as part of their treatments for gastro intestinal disorder[21]. This proposed protocol is easy to implement, safe, non-invasive, and low-cost.

Man has always been ignorant of the plethora of natural products that are available around him. In his search for newer treatment modalities in medicine, he has reached back to the source of several vital materials that are available in nature. These natural products are not only highly bioactive, they also have several interactions that are synergistic in preventing infections, promoting healing and preserving health in total [22].

"Let food, be thy medicine and medicine be thy food"

-HIPPOCRATES

Honey is one such substance that exemplifies this statement. Considered nature's energy booster, honey is a natural remedy that has been used for centuries. A rich source of natural sugars, honey also contains a host of vitamins, minerals, and antioxidants[18].

The substance is effective in treating variety of conditions. Used as a medical treatment and preventive, honey is considered the simplest most effective option available. Honey can effectively prevent Pregnancy Induced Hypertension, anaemia in pregnancy, pregnancy combined with hepatitis and other diseases[23].

Honey helps in production of intestinal mucus, hydrates the colon and infuses water into dried stool. This helps to pass motion easily. Honey has Probiotics that alter the colonic flora and also can improve bowel function.

Pregnant women will appear the phenomenon of constipation during pregnancy, and honey has Runchang laxative effect, so eating honey can effectively prevent constipation and haemorrhoids bleeding[24].

Many people find a hot drink in the morning stimulates the bowels. Lemon and honey in hot water seems to stimulate mucus production in the intestine, aiding in flushing of toxins[25].

Selection of honey is important. ***Mr.Azhim Sanyal*** **(2016),** Heads of consumer voice puts it, in *The Times of India*, Dabur honey ranked No: 1 in purity. Dabur honey is the purest, in terms of meeting not only the FSSAI standards and met the EU standards as well[26].

In view of the above studies and from the investigator experience in caring for the antenatal mothers it was observed that constipation was one of the discomfort experienced by the antenatal mothers. The researcher is interested in incorporating complementary therapies in rendering nursing care and also researcher's curiosity in experimental study for helping the clients to relieve constipation by non pharmacological measures. To be specific the researcher is intended to find out the effectiveness of honey to relieve constipation among antenatal mothers in third trimester. There by aiming to bring with a cost effective home remedy for the discomfort experienced by the antenatal mothers.

1.2 Statement of the problem

"A study to assess the effectiveness of honey on constipation among antenatal mothers in third trimester admitted in Institute of Obstetrics and Gynaecology and Govt hospital for women and children, Chennai."

1.3 Objectives

- To assess the level of constipation among antenatal mothers in third trimester in both control and experimental group.
- To compare the level of constipation among antenatal mothers in third trimester in pre test and post-test among experimental and control groups.
- To evaluate the effectiveness of honey on constipation among antenatal mothers in third trimester in experimental group.
- To find the association of level of constipation with selected demographic variables among the antenatal mothers in third trimester.

1.4 Operational definitions:

1. **Effectiveness:** is the improved level of elimination pattern among antenatal mothers with constipation by comparing pre-test and post-test.
2. **Constipation:** is a condition in which there is difficulty in emptying the bowels, associated with less frequent bowel movements and / or hardened faeces and / or rectal fullness or pressure and/ or small volume of stool[5].
3. **Antenatal mother:** refers to all the pregnant women both primi and multi gravida before child birth.
4. **Third trimester:** refers to a period beyond 27 weeks of gestation.
5. **Honey :** is sold in shops in the trade name of Dabur,10 ml two times a day in 100 ml of warm water will be given.

1.5 Assumptions:

- Women during pregnancy will experience constipation in certain level.
- Honey regulates the normal bowel elimination pattern.
- Honey may relieve constipation during third trimester pregnancy in certain level.

1.6 Research hypotheses:

H_1: There may be significant difference in level of constipation among experimental and control group.

$H_{2:}$ There may be significant association between the level of constipation and the selected demographic variables.

1.7 Delimitation

The study is limited to four weeks.

The study is done among antenatal mothers in third trimester with constipation admitted in antenatal wards in Institute of Obstetrics and Gynaecology and Govt hospital for women and children, Chennai.

CHAPTER II

REVIEW OF LITERATURE

Any scientific investigation starts with a review of the literature. In fact, working with the literature in an essential part of the research process which generates the idea, helps in developing significant questions are regarded as instrumental in the process of research design. Reviews are short articles that give brief information regarding the work done in a particular area over a period of time.

This chapter deals with the selected studies, which are related to objectives of the proposed study.

2.1 Review of related literature

2.2 Conceptual framework

2.1 Review of related literature

2.1.1: Studies related to constipation

2.1.2: Studies related constipation in pregnancy

2.1.3: Studies related to honey on treatment of constipation

2.1.4: Studies related to honey and its effects other than constipation

2.1.1: Studies related to constipation

***Dik VK, Siersema PD, Joseph A, et al. (*2014)** conducted a study to investigate chronic constipation-related direct medical costs in patients with newly diagnosed chronic constipation and study differences in costs according to natural history. They identified 16 887 patients newly diagnosed with

chronic constipation in a Dutch health insurance database. Individuals with chronic constipation were selected on the basis of chronic laxative use and diagnostic related groups for chronic constipation. Costs were highest in patients with persistent disease, compared with patients with episodic and non recurrent disease [27] (P<0.01).

***Yiannakou Y, Piessevaux H, BouchouchaM*, et al. (2014)** conducted a study in Chicago on chronic constipation. This was a multicenter, stratified, randomized, parallel-group, double-blind, placebo-controlled, phase 3 study. In total, 374 patients were enrolled in the study. Significantly more patients achieved a mean of three or more per week in the prucalopride (laxative) group (37.9%) than in the placebo group (17.7%, P<0.0001). The proportion of patients rating their constipation treatment as "quite a bit" to "extremely" effective at the final on-treatment visit was 46.7 and 30.4% in the prucalopride and placebo groups, respectively. The difference between treatment groups was statistically significant [28](P<0.0001).

***Layer P, Stanghellini V.* (2014)** conducted a study in Adelaide on Irritable bowel syndrome with constipation (IBS-C) represents a significant burden to patients and healthcare systems due to its prevalence and lack of successful symptomatic resolution with established treatment options. Linaclotide 290µg has recently been approved by the European Medicines Agency (EMA) for moderate-to-severe IBS-C and by the US Food and Drug Administration for IBS-C (290µg dose) and for chronic constipation (145µg dose). Clinical trial data demonstrate that linaclotide (60%) improves abdominal symptoms (pain, bloating) and bowel symptoms (constipation) compared with placebo in patients with IBS-C. The difference between treatment groups was statistically significant [29] (P<0.0001).

***Chevalier P*, *Lamotte M*, *Joseph A*, et al. (2013)** conducted a study on chronic constipation. The objectives of this study were to assess hospitalization resource use and costs associated with chronic constipation and its complications in Belgium. This was a single country, retrospective study which

comprises data on 34% of acute hospital beds in Belgium and contains information on patient demographics, length of stay (LOS), billed costs, drug use, diagnoses, and procedures.. In total, 1541 eligible patients were identified. The average unadjusted cost per day in hospital for idiopathic constipation was €441. The most frequent drug and procedural treatments were (with complications: 42.61%; without complications: 35.69%), and transanal enema (2.32% and 2.03%), respectively [30].

2.1.2: Studies related to constipation in pregnancy

Derbyshire[31] ***et al.*** **(2014)** conducted two prospective cohort studies in Alaska were found with moderate study quality, using small population samples, through self-administered questionnaires and diaries. They used Rome II criteria to define constipation. Data was collected exclusively at each trimester and 6 weeks post-partum from primiparous pregnant women. From the 94 subjects that were initially recruited only 42 successfully completed every study stage, an overall compliance rate of 42%. The study estimates that the prevalence of constipation within the sample population was greatest in the first and second trimesters, 35% and 39% respectively and in the third trimester, 21% and at 6 six weeks postpartum, 17% .The mean prevalence rate of constipation during pregnancy of this study was 32%.

Bradley et al. **(2013)** conducted a study in Portland; data were collected at each trimester and 3 month postpartum. The follow-up data were returned by 63 women (61.2%) at 3months postpartum. Of the103 women who initially returned the data in the first trimester. This study estimates that constipation prevalence rates were 24% in the first trimester , 26% in the second, 16% in the third, and 24% and 3 months postpartum. Overall, 51 % women reported constipation at some point during pregnancy. This study states that functional constipation, defined using the Rome II criteria, occurred in 16–26% of women studied in each pregnancy trimester[14].

Jewell DJ, Young G (2010) Cochrane Library conducted a study on urinary in continence and constipation during pregnancy. A total of 2,062 women (858 primi gravidae, 1,057 multi gravidae and 147 multi gravidae participated. A questionnaire was administered on the maternity wards, Dublin. Of the total number of women questioned initially, 59% experienced some degree of leaking the incidence of which significantly increased with parity(x^2=56.26; P=0.0001). The incidence of incontinence 31% in the multi parous and 11% in precipitous group of the total women questioned, 355 suffered from constipation, the incidence of which also significantly increased in parity[32](x2=6.034, P=0.049).

Ponce, Julio, Martínez, Beatriz et al. **(2008)** conducted a study in Auckland on constipation during pregnancy. An increase in the prevalence of constipation during pregnancy has been suggested to occur. They designed a prospective study to evaluate the prevalence of constipation during pregnancy and puerperium, to investigate possible associations with eating habits and lifestyle, and to evaluate the frequency of laxative use. The questionnaire was administered in the obstetric clinic in the first trimester of pregnancy, and by telephone in the second and third trimesters, and in the puerperal period. The prevalence of self-reported constipation in these time periods was 45.4, 37.1, 39.4, and 41.8%, respectively[33].

Kathleen Marshall, Kate A. Thompson. (2007) International Journal of Obstetrics & Gynaecology (2005), to assess the impact of pregnancy upon incontinence and constipation. A questionnaire survey conducted at Maternity wards in the Rotunda Lying in Hospital, Dublin, and Republic of Ireland.7771 women who were delivered of live born infants Questionnaires were delivered and collected by physiotherapy staff as part of routine postnatal care. Analysis of data using χ^2 tests showed significant differences between three parity groups for symptoms of both urinary incontinence (χ^2= 119.54, df = 2, P = 0.000) and constipation (χ^2= 12.53, df = 3, P = 0.002); the incidence of both constipation and urinary incontinence increased with parity[34].

***Emma Derbyshire, Jill Davies Vassiliki costarelli et al. (*2006)** few studies in Sweden appear to have investigated the prevalence of constipation for all three trimesters of the gestational period, or indeed after birth. Using a prospective 4- to 7-day weighed food diary, International Physical Activity Questionnaire and 7-day bowel habit diary, dietary factors, physical activity levels and bowel habit parameters were assessed and examined concurrently at weeks 13, 25, 35 of pregnancy and 6 weeks post-partum. Ninety-four primiparous pregnant women were initially recruited, and 72, 59, 62 and 55 completed the first, second, third trimester and post-partum study stages, respectively. This study demonstrates that dietary factors may play a role in terms of preventing, or alleviating, bowel habit perturbations both throughout and after pregnancy[31].

H. Jorien van Brummen, Hein W. Bruinse, Geerte van de Pol et al. (2005) A prospective cohort study was undertaken in Netherland to evaluate the impact of pregnancy and the first delivery on the defecatory symptoms and to identify associated factors among 487 nulliparous pregnant women who completed four questionnaires. Flatus and fecal incontinence, constipation, and painful defecation are already present in early pregnancy and are significantly predictive for reporting symptoms after delivery, except for fecal incontinence. A third or fourth degree sphincter tear was significantly associated with fecal incontinence and constipation[35].

Annie S. Anderson. **(2005)** conducted a study a comparative study in Melbourne to evaluate dietary factors in the aetiology and treatment of constipation during pregnancy. Using a 7-day weighed-intake method, dietary factors implicated in the aetiology of constipation were examined by comparison between the nutrient intakes of 9 women with constipation in the third trimester of pregnancy who had not altered their diets, and a matched group of 9 women who had not suffered constipation at any time during pregnancy. The nutrient intakes of 40 women with constipation in the third

trimester of pregnancy were examined to assess dietary changes made in attempts to treat constipation. No difference in intakes of dietary fibre was found between those who claimed to have increased their intakes, and those who had not altered their diets. Both were well below the level of dietary fibre intake known to be successful in treating constipation[36].

Neri I, Blasi I, Castro P, Grandinetti G .et al. (2004) conducted an observational open-label study in Brasilia for constipation during pregnancy state that prevalence of constipation (11-38%), which focused solely on bowel movement frequency while their study demonstrates that other symptoms of straining, lumpy or hard stools, and sensation of incomplete evacuation were more commonly reported than infrequent defections. This study also estimates that women who reported a history of constipation (41.7%, P=0.04) were more likely to develop constipation during pregnancy[37].

Levy N, LembergE, Sharf M et al. **(2002)** from the Medical Department 'A' and Gastrointestinal Clinic and the Department of Gynaecology and Obstetrics. The Rothschild Municipal-Government Hospital, Haifa. One thousand healthy postpartum Israeli women were interviewed on their bowel habit before and during pregnancy. In 54.6% there was no change in the bowel frequency during pregnancy, while 34.4% had an increased and 11% a decreased frequency. When the series was analysed according to the ethnic backgrounds, it was found that the Arab women tended to be even less constipated than the Jewish ethnic groups. Contrary to the generally accepted view that constipation is frequent in pregnancy, 79% of the women experienced either no change or an increase of bowel frequency during pregnancy, whereas constipation requiring laxative treatment was rare.[38](8.5%)

Magan Trottier, MSc, Aida Erebara, MD, and Pina Bozzo et al. **(2001)** conducted an experimental study in Mexico city on treating constipation in pregnancy**.** It has been estimated that approximately 11% to 38% of pregnant women experience constipation, which is generally described as infrequent bowel movements or difficult evacuation. Although the recommended first-line

therapy for constipation includes increasing fibre, fluids, and exercise, these are sometimes ineffective. It is recommended that osmotic and stimulant laxatives be used only in the short term or occasionally to avoid dehydration or electrolyte imbalances in pregnant women. Probiotics that alter the colonic flora might also improve bowel function[4].

David Jewell, Gavin Young. **(2001)** Cochrane Pregnancy and Childbirth Group conducted a study to assess the effects of different methods for treating constipation in pregnancy. Two suitable trials were identified. Fibre supplements increased the frequency of defecation (odds ratio 0.18, 95% confidence interval 0.05 to 0.67), and lead to softer stools. Stimulant laxatives are more effective than bulk-forming laxatives (odds ratio 0.30, 95% confidence interval 0.14 to 0.61), but may cause more side effects. Dietary supplements of fibre in the form of bran or wheat fibre are likely to help women experiencing constipation in pregnancy. If the problem fails to resolve, stimulant laxatives are likely to prove more effective[32].

2.1.3: Studies related to honey on treatment of constipation

Huang Ali Jing Et a**l. (2012)** conducted an experimental study to determine the impact of (honey 10 ml) twice a day for constipation among patients with haemorrhagic stroke in Longhua branch of people's hospital, China. A sample of 62 patients were randomly divided into control and experimental group, there were 31 cases in each group. Control group were given conventional stroke care, experimental group were given honey administration, addition to routine care. The incidence of constipation and degree of constipation of two groups were compared. The incidence of constipation in the experimental group was 25%, in control group was 61.29%. The study concluded that administration of honey is effective in management of constipation[38].

***Erejuva et al*. (2012)** conducted a quasi experimental study to assess the efficacy of honey with lemon juice in the treatment of constipation in China. Sample of 64 pregnant women with constipation was selected. The samples were divided into 35 experimental and 29 control groups. Intervention group received honey for four consecutive days, control group received health education regarding management of constipation. The incidence of constipation was lower in the intervention group than that in the control group ($p<0.05$). The study concluded that honey was effective in treating constipation[39].

***Doreen mc clurg et al*. (2011**) conducted an experimental study with a view to administer the supplementation of honey for the alleviation of constipation symptoms in people with multiple sclerosis in Glasgow Caledonian University. A sample of 30 patients randomly divided into control and experimental group. Both group received fluid intake, fibre diet, and exercise. In addition experimental group was given 5-10ml of honey with warm water for 3 days. In both group constipation scale score decreased however the experimental group improved significantly more than the control group, 95% ($t= 3.28$, $p.003$). They concluded that supplementation of honey is effective to alleviate constipation among geriatric patients[40].

***Lars Lindholm et al. (2009*)** conducted a randomized controlled trail on the management of constipation in Sweden. A sample of 60 people with constipation was included and randomized in two groups. The intervention group only received honey mixture. Symptoms assessed with gastro intestinal symptom rating scale according to total score ($p= 0.003$), constipation syndrome ($p=.019$). The intervention group also had significant increase of bowel movements compared to the control group ($p=0.016$). The study concluded that administration of honey for constipation regulates peristalsis and decrease the severity of symptoms of constipation[41].

***Lamas et al.* (2009)** conducted a controlled clinical trial with a view to determine the use of honey. Clementon management of constipation among 60 elderly patients in the control group, Umea University, Sweden. Block randomization was used to allocate 60 volunteers with the mean age of sixty

four; the intervention group was given lemon with honey tea for 5 days. The control group continued with their routine care. The investigator used two validated questionnaires to evaluate the bowel function, Gastro Intestinal symptom Rating scale and the Bristol scale. The study concluded that this intervention significantly increase the number of bowel movements as well as it decreases the severity of constipation symptoms in the intervention group[42].

Jung HM et.al. **(2004)** conducted an experimental study to assess the effect of honey on constipation among 48 pregnant women, at Jiangsu medical university in China. The samples were randomly divided into two groups. Experimental of 25 and control group 23. Administration of honey tea twice a day to the experimental group and no honey was administered to the control group. The level of constipation was assessed by constipation assessment scale. There was a significant improvement in frequency of defecation and less severity of constipation in the experimental group compared to the control group. The result of the study concluded that the honey was effective to manage patients with constipation[43].

2.1.4: Studies related to honey and its effects other than constipation

Bernadette Baca, Health Physicist. **(2012)** conducted an evaluatory study in Thailand among 124 anaemic rural populations. Iron deficiency anaemia is a condition that occurs when dietary intake or absorption of iron is insufficient, and the oxygen carrying capacity of the blood is compromised. Honey is mixed in tepid water and made to drink, once a day for a week. It has beneficial impact on the red blood cell (RBC) count in the blood. RBCs are mainly responsible for carrying oxygen in the blood to various parts of the body. The honey-tepid water mixture raises the bloods haemoglobin levels, which takes care of anaemic conditions. They reduced the symptoms of fatigue, breathlessness, and depression and other problems[44].

Wang et al. **(2012)** conducted a prospective study in China**.** Cancers develop through mutation of the genetic structure of tissues. This mutation is

promoted by chemicals and other stimuli, some of which can be nutritionally based. It is generally accepted that heterocyclic amines and nitrosamines formed during roasting and frying of food can promote such activity. There is evidence that suggests that some compounds found in honey may slow or prevent such activity. They tested a number of different monofloral honeys and showed that they all had antimutagenic properties[45].

Erejuwa, O. O., Sulaiman, S.A., Ab Wahab, M. S., et al. **(2012)** conducted an true experimental study in Jiangsu medical university in China among 17 patients on Digestive and Gut Health. Honey was given twice a day for gastric ulcer clients. There is research evidence, that honey inhibits growth of *Helicobacter pylori*, the bacteria associated with development of gastric ulcers. Recent work has highlighted the potential antibiotic effect of honey with a number of intestinal pathogens. It is believed that either component in honey stimulate sensory nerves in the stomach or the action is linked to an antioxidant effect. There has been health links associated with oligosaccharides present in honey with some evidence of prebiotic effects similar to fructo-oligosaccharides more commonly used. This is a study which showed particular effects on the functionally important bacteria, bifido bacteria and lactobacilli [39].

Tahereh Eteraf-Oskouei **and** ***Moslem Najafi*****. (2008)** Clinical trials are conducted comparing honey dressing in burns with amniotic membrane dressing; silver sulfadiazine dressing and boiled potato peel dressing among 100 burns clients. Honey dressing showed better improvement in these cases and showed early healing with lesser degree of contracture and scarring. Good histological preservation of skin grafts after honey treatment has also been described[46].

Pieper, Barbara. (2007) conducted a study on honey-based wound dressing in Korea at Tongji laboratory. A honey product received US Federal Drug Administration approval in 2007, making this dressing an option for wound care. Honey has been found to exert anti-inflammatory and antibacterial

effects without antibiotic resistance, promote moist wound healing, and facilitate debridement. However, it may cause a stinging pain. This article provides a summary of the current evidence base for the use of honey and a review of its therapeutic effects and discusses implications for wound care in nursing practice[47].

Bansal V, Medhi B, Pandhi P. **(2005)** a study on honey as a remedy rediscovered and its therapeutic utility at Kathmandu University. Honey is used worldwide for the treatment of various ophthalmological conditions like blepharitis, keratitis, conjunctivitis, and corneal injuries, chemical and thermal burns to eyes. In experimental study, with topical application of honey as ointment, in 102 patients with non responsive eye disorders, improvement was seen in 85% patients and in remaining 15% there was no disease progression. Application of honey in infective conjunctivitis reduced redness, swelling, pus discharge and time to bacterial eradication[48].

Lynne M. Bang, Catherine Buntting, Peter Molan et al. **(2003)** conducted a study at Honey Research Unit, Waikato University, Hamilton, New Zealand. Honey is an effective antiseptic wound dressing, mainly the result of the antibacterial activity of hydrogen peroxide that is produced in honey by the enzyme glucose oxidase. The maximum levels of accumulated hydrogen peroxide occurred in honey solutions diluted to concentrations between 30% and 50% with at least 50% of the maximum levels occurring at 15– 67% This is equivalent to a 10 cm3**.** 10 cm dressing containing 20 ml of honey becoming diluted with 10 to 113 ml of wound exudates. Maximum levels of hydrogen peroxide reached in the diluted honeys were in the range of 1– 2 mol/L. Significant antibacterial activity can be maintained easily when using honey as a wound dressing, even on a heavily exuding wound[49].

Al-Waili, N. S. **(2003)** a comparative study was conducted in Sun Yat-Sen university among 43 clients with coronary heart disease; ingestion of a fructose/glucose mixture with consumption of honey on various heart and vascular biomarkers. There is evidence to suggest that micro components in honey have a positive effect on markers of heart health. Other research has shown positive vascular effects in diabetic patients postulating that this could be used in the management of the condition. As in other areas the origin of the effect remains uncertain however one group has suggested that it could be due oligosaccharides present. A second has suggested that the effect is linked to stimulation of increased energy expenditure Nitric oxide (NO) metabolites can be present in honey. NO is a known marker of heart disease and elevated levels of metabolites may be evidence of a protective function[50].

Selwyn AP, Braunwald E[51]. **(2001**) an experimental study conducted in Thailand on effects of honey in ischemic heart diseases against cardiovascular risk factors such as hyperlipidemia and production of free radicals among 67 middle age persons. Antioxidants present in honey include Vitamin C, monophenolics, flavonoids, and polyphenolics. Regular flavonoid intake is associated with a reduced risk of cardiovascular diseases. A wide range of phenolic compounds is present in honey which has promising effect in the treatment of cardiovascular diseases. In coronary heart disease (CHD), the protective effects of phenolic compounds include mainly antithrombotic, anti-ischemic, anti-oxidant, and vasorelaxant. In 38 overweight individuals, the effect of natural honey on total cholesterol, LDL-C, high-density lipoprotein cholesterol (HDL-C), triacylglycerole, C-reactive protein (CRP), fasting blood glucose and body weight were investigated. The results showed that receiving 70 g of natural honey for 30 days caused reduction in total cholesterol, LDL-C, triacylglycerole and CRP (P<0.05).

Al-Jabri AA.(**2001)** an experimental study conducted in Riyadh among 23 diabetic patients. The use of honey in type I and type II diabetes was associated with significantly lower glycemic index than with glucose or sucrose

in normal diabetes. Honey compared with dextrose caused a significantly lower rise in plasma glucose levels in diabetic subjects. It also caused reduction of blood lipids, homocysteine levels and C-reactive protein (CRP) levels in normal and hyperlipidemic subjects. In earlier observations, it was found that honey stimulates insulin secretion, decrease blood glucose levels, elevates haemoglobin concentration and improves lipid profile[52].

2.2 Conceptual framework

The conceptual framework for research study presents the reasoning, on which the purposes of the proposed study based. The framework provides the perspective from which the investigator views the problem. The present study is focused on the administration of honey to the constipated antenatal mothers to improve the elimination pattern. The investigator adopted the "Modified Wiedenbach's Helping Art of Clinical Nursing Theory" (2006) as a base for developing the conceptual frame work.

The investigator adopted the Weidenbach's Helping Art of Clinical Nursing Theory[53] (1964) as a base for developing the conceptual framework. This theory directs on action towards an explicit goal.

It has 3 factors:

1. Central purpose
2. Prescription
3. Realities

1. Central Purpose

It refers to what the nurse wants to accomplish. It is the overall goal towards which a nurse strives. In this study the main central purpose is to assess the effectiveness of honey on constipation among antenatal mothers in third trimester.

2. Prescriptions

It refers to the researcher's plan of care or intervention to meet client need. It will specify the nature of action that will fulfil the nurses' central purpose. This includes the administration of 10 ml of honey in 100ml of warm water twice a day for three consecutive days among constipated antenatal women to the experimental group and assess the clients on 4th day for the level of constipation in both the groups.

3. Realities

It refers to physical, physiological, emotional and spiritual factors that affect the nursing action. The five realities identified by Weidenbach's theory are agent, recipient, goal, means, activities and framework.

The conceptualization of nursing practice according to this theory consists of three steps:

Step-1: Identifying the need for help

Step-2: Ministering the needed help

Step-3: Validating the help

Step-I- : Identifying the need for help

This step involves determining the need for help. The determination of the need for help is done by the process of sample selection on the basis of inclusive and exclusive criteria followed by the pre assessment of level of constipation among antenatal mothers in III trimester.

Step-2: Ministering the needed help

This step involves provision of required help for identified need. It has two components.

a. Prescriptions

Refers to the investigator's plan of care or intervention to meet the clients' need. This includes the administration of 10 ml of honey in 100 ml of warm water twice a day for three consecutive days among constipated antenatal women in third trimester.

b. Realities:

This theory constitutes that the following element:

Agent: Investigator

Recipient: Patients with complaints of constipation.

Goal: To improve bowel elimination pattern.

Means:

- Experimental group: To assess the level of constipation and administration of honey.
- Control group: To assess the level of constipation and giving routine care.

Activities: The nurse validates the ministered help. It is accomplished by means of post assessment of the effectiveness of honey in relieving constipation among antenatal mothers in third trimester on 4^{th} day after administration of honey to the experimental group. Then the effectiveness of the intervention is compared between the experimental and control group.

Frame work: Antenatal wards in Institute of Obstetrics and Gynaecology and Govt hospital for women and children.

Step III : Validating the need for help is met

Validating the needed help is met. This is done by the post assessment using The Constipation Assessment Scale for Pregnancy **(Broussard)**. It is an adaptation of the Constipation Assessment Scale of McMillan and William. It includes the signs and symptoms of constipation such as, Abdominal distension or bloating, Change in amount of gas passed rectally, Less frequent bowel movements, Oozing liquid stool, Rectal fullness or pressure, Rectal pain with bowel movement, Small volume of stool, Unable to pass stool. It was used to assess the level of constipation. Then the effectiveness of the intervention is compared between the experimental and control group.

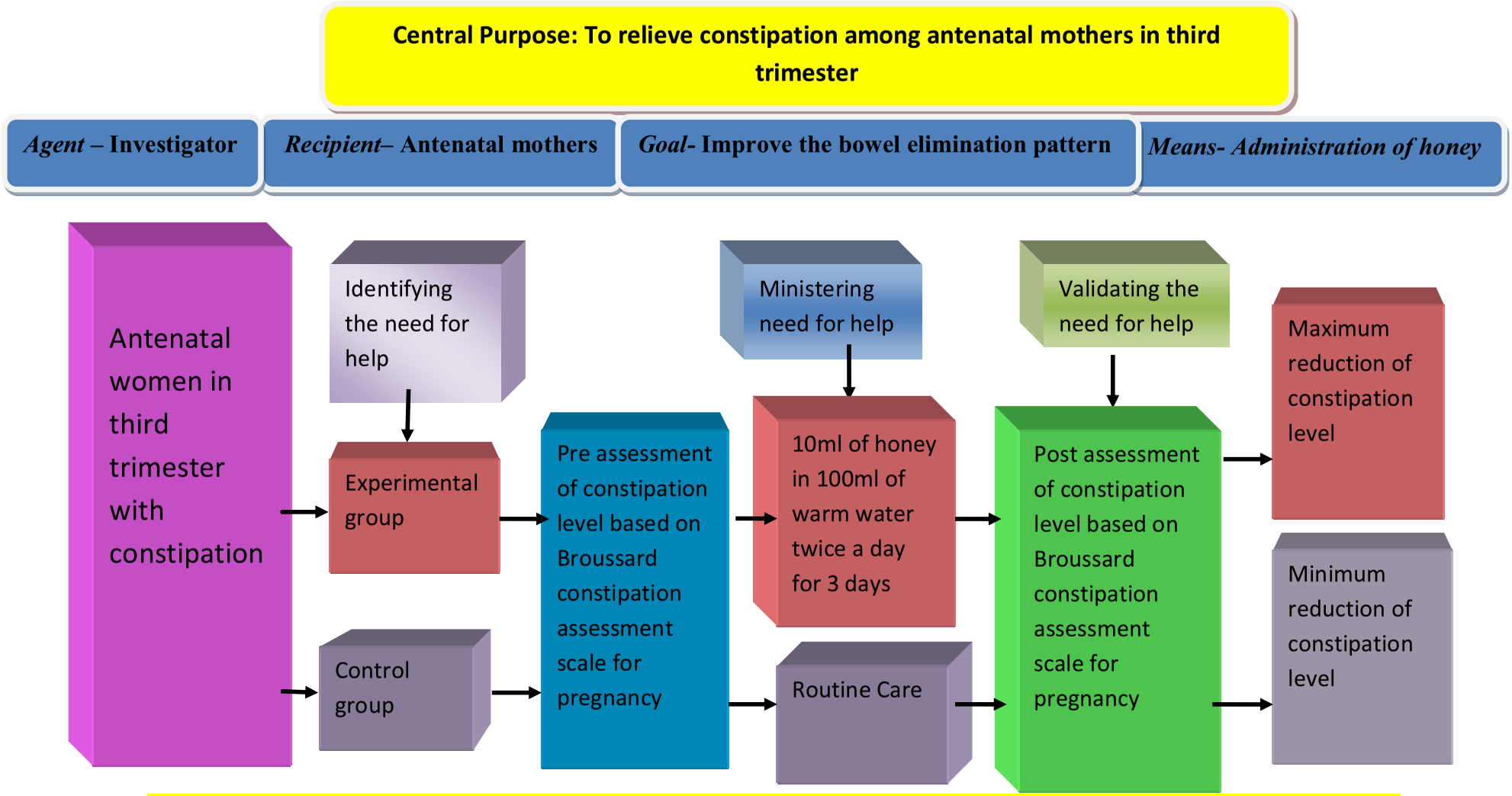


Figure 2.2: Conceptual Framework Based on Modified Weidenbach's Helping Art of Clinical Nursing Theory

CHAPTER-III

RESEARCH METHODOLOGY

The methodology involves a systematic procedure by which the researcher starts from the initial identification of the problem to its final conclusion. This study was conducted to assess the effectiveness of honey on constipation among antenatal mothers in third trimester admitted in Institute of Obstetrics and Gynaecology and Govt hospital for women and children, Chennai.

3.1 Research approach

A quantitative approach was adopted in this study as the investigation is aimed to assess the effectiveness of honey to relieve constipation among antenatal mothers in third trimester.

3.2 Data collection period

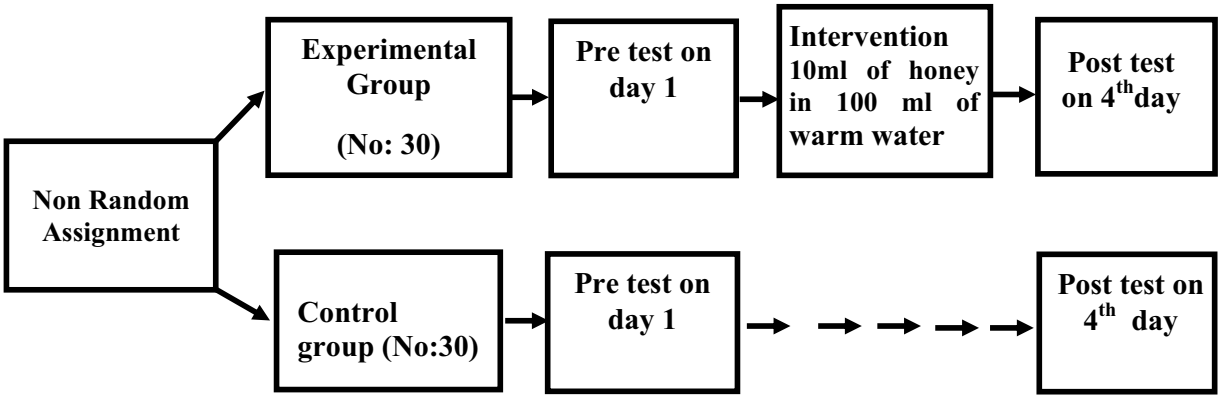
The period of data collection was four weeks from 16.07.2015 to 15.08.2015.

3.3 Study setting

The study was conducted in antenatal wards at IOG, Chennai. It is a 1075 bedded maternity hospital, started on 26th July 1844 for public service. Being a tertiary referral centre, all high risk obstetric cases are managed with utmost care and high tech skills by an efficient team. A well equipped intensive care unit and 24 hours blood bank services also play a major role in preventing maternal deaths. It has been recognised as a centre of excellence. Various departments such as neonatal intensive care unit, family planning services, oncology department and genetic department were renovated. It provides comprehensive care for entire TamilNadu and neighbouring states like Andhra Pradesh.

3.4 Study design

Quasi – experimental Design [54](Non- randomized control group design)



3.5 Study population

Antenatal mothers in third trimester with constipation admitted in antenatal ward in Institute of Obstetrics and Gynaecology and Govt hospital for women and children, Chennai.

3.6 Sample size

The sample size for the study comprised of 60 antenatal mothers in third trimester with constipation. Out of which 30 samples for experimental group and 30 samples for control group were allotted.

3.7 Sample selection criteria

3.7.1 Inclusion Criteria

- Antenatal mother in third trimester with constipation.
- Antenatal mothers of all age group.
- Both primi and multigravida mothers.
- Who are willing to participate in the study.

3.7.2 Exclusion criteria

- Antenatal mothers who have not given consent for the study.
- Antenatal mothers who are having other associated problem with constipation.
- Antenatal mother with other systemic illness, eclampsia, severe PIH and GDM.
- Antenatal mothers with hypothyroidism, chronic constipation, habitual constipation.

3.8 Sampling technique

Non probability purposive sampling technique was used to select the samples. The investigator selected the samples from two antenatal wards; experimental group from Ward No: 1 and control group from Ward No: 2, this technique was used to prevent contamination like sharing of information between the two groups.

3.9 Research variables

Independent variable- honey administration

Dependent variable – antenatal mothers in third trimester with constipation

3.10. Development and description of the tool

3.10.1 Development of the tool

Tool is developed after extensive review of literature from various text book, journals, internet search, discussion and guidance from the experts in the field of medical and nursing from Department of Obstetrics and Gynaecology.

3.10.2 Description of the tool

Section –A comprised of demographic variables like age, educational status, occupation, monthly income, religion, residence, type of family.

Section -B comprised of obstetric variables like gravida, gestational age, and registration in antenatal clinic.

Section –C comprised of personal variables like bowel habits, fluid intake, dietary pattern, daily activities, relieving measures.

Section-D comprised of clinical variables which are given in the constipation assessment scale for pregnancy. It is an adaptation of the Constipation Assessment Scale of McMillan and Williams[55] (Broussard, 1998). It includes the signs and symptoms of constipation such as, abdominal distension or bloating, change in amount of gas passed rectally, less frequent bowel movements, oozing liquid stool, rectal fullness or pressure, rectal pain with bowel movement, small volume of stool, unable to pass stool. It was used to assess the level of constipation.

Scoring key

The constipation level was assessed using constipation assessment scale on eight variables.

The scores are as follows.

Clinical variables

a) None-0
b) Mild-1
c) Moderate-2
d) Severe-3
e) Very Severe-4

Maximum score 32

Minimum score 0

Score interpretation

None to Minimal=0-8

Minimal to Moderate=9-17

Moderate to Severe= >25

Intervention protocol

	Experimental group	**Control group**
Place	Antenatal ward	Antenatal ward
Dose	Honey 10 ml added in 100 ml of warm water.	Routine care
Duration	3 days	3 days
Frequency	Twice a day	**-**
Time	7.30 am & 9.00pm	**-**
Administered by	Morning dose by the investigator and evening dose by the client itself.	**-**
Recipient	Antenatal mothers in third trimester with constipation	Antenatal mothers in third trimester with constipation

3.10.3 Content validity

Content validity is a case of expert judgement about the content area included in the research instrument to measure a particular phenomenon based on previous researches, and experts' opinion about the adequacy, appropriateness and completeness of the content of instrument**.**

After construction of questionnaire, validity of the tool was assessed using content validity. Content validity was determined by experts from medical, statistician and nursing field. They suggested some modifications in the tool. After the

modification they agreed this tool for assessing effectiveness of honey on constipation among antenatal others in third trimester.

3.11 Ethical consideration

The study objectives, intervention and data collection procedure were approved by the research and ethical committee of the institution. The research proposal was approved by the experts prior to the pilot study and permission for the main study was obtained from the Director and Head of the Institution of Obstetrics and Gynaecology, Chennai. Informed consent was obtained from each antenatal mother in third trimester with constipation before starting the data collection. Assurance was given for confidentiality and privacy.

3.12 Pilot study

Pilot study is a trail run for the main study, to test the reliability, practicability and feasibility of the study. The pilot study was conducted in antenatal wards of IOG, Chennai. Antenatal mothers in third trimester with constipation were selected for pilot study, five women for each experimental and control group respectively. Non probability purposive sampling technique was used. Honey mixture was administered to the experimental group. The result showed that the level of constipation decreased in the post assessment. The tool was feasible and practical to administer and hence no further modification was done.

3.13 Reliability of the tool

After pilot study reliability of the tool was assessed by using split half method and its correlation coefficient r –value is 0.83. This correlation coefficient is very high and it is an adequate tool for assessing effectiveness of honey on constipation.

3.14 Data collection procedure

The antenatal mothers in third trimester with constipation were assured that the data collected will be kept confidential and data collection was done four weeks.

Phase –I

Screenings of the subjects were done with the help of constipation assessment scale for pregnancy (Broussard) and information was collected with the questionnaire. Samples selected by purposive sampling technique and they were divided into two groups, experimental and control with 30 subjects in each group. Pre-assessment of constipation level was assessed for both the group.

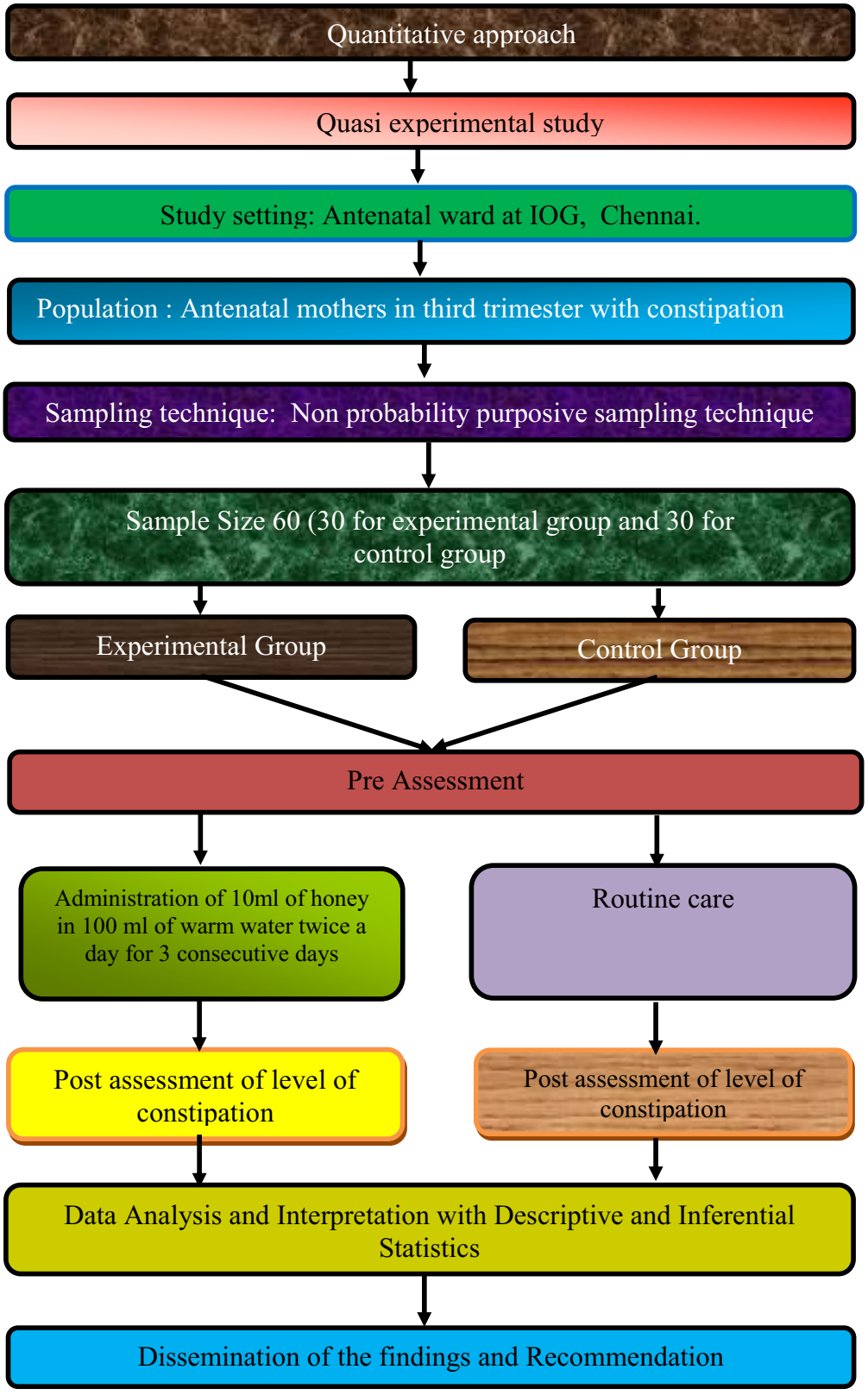
Phase II

The investigator selected the samples from two antenatal wards; experimental group from Ward No: 1 and control group from Ward No: 2. Purposive sampling technique was used to prevent sharing of information between samples. Experimental group received 10 ml honey in 100 ml of warm water twice a day for three consecutive days and for control group routine care was given. The investigator took two to three samples per day and spent about 20 minutes to each sample to clarify their doubts. Post assessment was done on fourth day for both experimental and control group using the same tool.

3.15 Data entry and analysis

The data were analyzed by descriptive statistical methods like mean, standard deviation, frequency percentage and inferential statistical methods like independent chi square and t-test. Analysed data were presented by tables and diagrams.

FIGURE-3.1: Schematic representation of research study



CHAPTER-IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the statistical analysis and interpretation of the data collected from constipated antenatal mothers in third trimester admitted in antenatal ward at Institute of Obstetrics and Gynaecology and Govt hospital for women and children, Chennai.

The researcher used descriptive and inferential statistics for analysis. The data were analyzed, tabulated and interpreted by using descriptive and inferential statistics in the sequence as follows.

The data deals with the demographic variables, obstetrical and personal variables, pre and post test assessment of level of constipation by constipation assessment scale for pregnancy (Broussard).The data was assembled, analyzed, and tested for their significance using appropriate statistical methods and the results are presented below.

Organization of the data

Section – 1: Distribution of sample in relation to variables.

A. Distribution of frequency percentage in experimental and control group in relation to demographic variables.
B. Distribution of frequency percentage in experimental and control group in relation to obstetric variables.
C. Distribution of frequency percentage in experimental and control group in relation to personal variables.

Section-2

Level of constipation in pre-test and post-test among experimental and control group.

Section – 3

Comparison of level of constipation among experimental and control group.

Section – 4

Effectiveness of honey on constipation among antenatal mothers in experimental group

Section – 5

Association between level of constipation reduction among selected variables.

a) Association between level of constipation reduction and demographic variable in experimental group.
b) Association between level of constipation reduction among personal variables in experimental group.

SECTION – 1A) Demographic profile

Table 4.1: Distribution of demographic variables

Demographic variables		Experimental(n=30)		Control(n=30)	
		frequency	in %	frequency	in %
Age in years	20 -25 years	14	46.7	9	30.0
	26 -30 years	13	43.3	16	53.3
	31 -35 years	3	10.0	5	16.7
Educational status	No formal education	3	10.0	5	16.7
	Primary education	6	20.0	10	33.3
	Secondary education	14	46.7	9	30.0
	Graduate & post graduate	7	23.3	6	20.0
Occupation	Home maker	26	86.6	24	80.0
	Self employed	2	6.7	2	6.7
	Private employee	2	6.7	4	13.3
Monthly income	< Rs.5000	10	33.3	15	50.0
	Rs.5001 -10000	14	46.7	11	36.7
	> Rs.10,000	6	20.0	4	13.3
Religion	Hindu	26	86.7	21	70.0
	Muslim	2	6.7	5	16.7
	Christian	2	6.7	4	13.3
Residence	Rural	11	36.7	13	43.3
	Sub urban	9	30.0	12	40.0
	Urban	10	33.3	5	16.7
Type of family	Nuclear family	20	66.7	15	50.0
	Joint family	10	33.3	15	50.0

Among experimental group majority of the mothers came under the age group of 20-25 years (46.7%) and in control group majority of them came under the age group of 26-30 years (53.3%). Regarding the educational status in experimental group majority, 14 (46.7%) belonged to secondary education and in control group, 10(33.3%) belonged to primary education.

Regarding occupational status both in experimental group 26(86.6%) and in control group, 24(80%) belonged to homemaker. Regarding income of the experimental group 14(46.7%) under the Rs.5000-10000/- per month and in control group 15 (50%) under the Rs.>5000/- per month. Regarding religion majority of the mothers in experimental group 26(86.7%) and in control group 21(70%) were Hindus.

Majority of the mothers in both experimental 11(36.7%) and control group, 13(43.3%) were rural population.

Considering the type of family in experimental group, 20 (66.7%) belonged to joint family and in control group both nuclear families and joint families (50%) participated in this study.

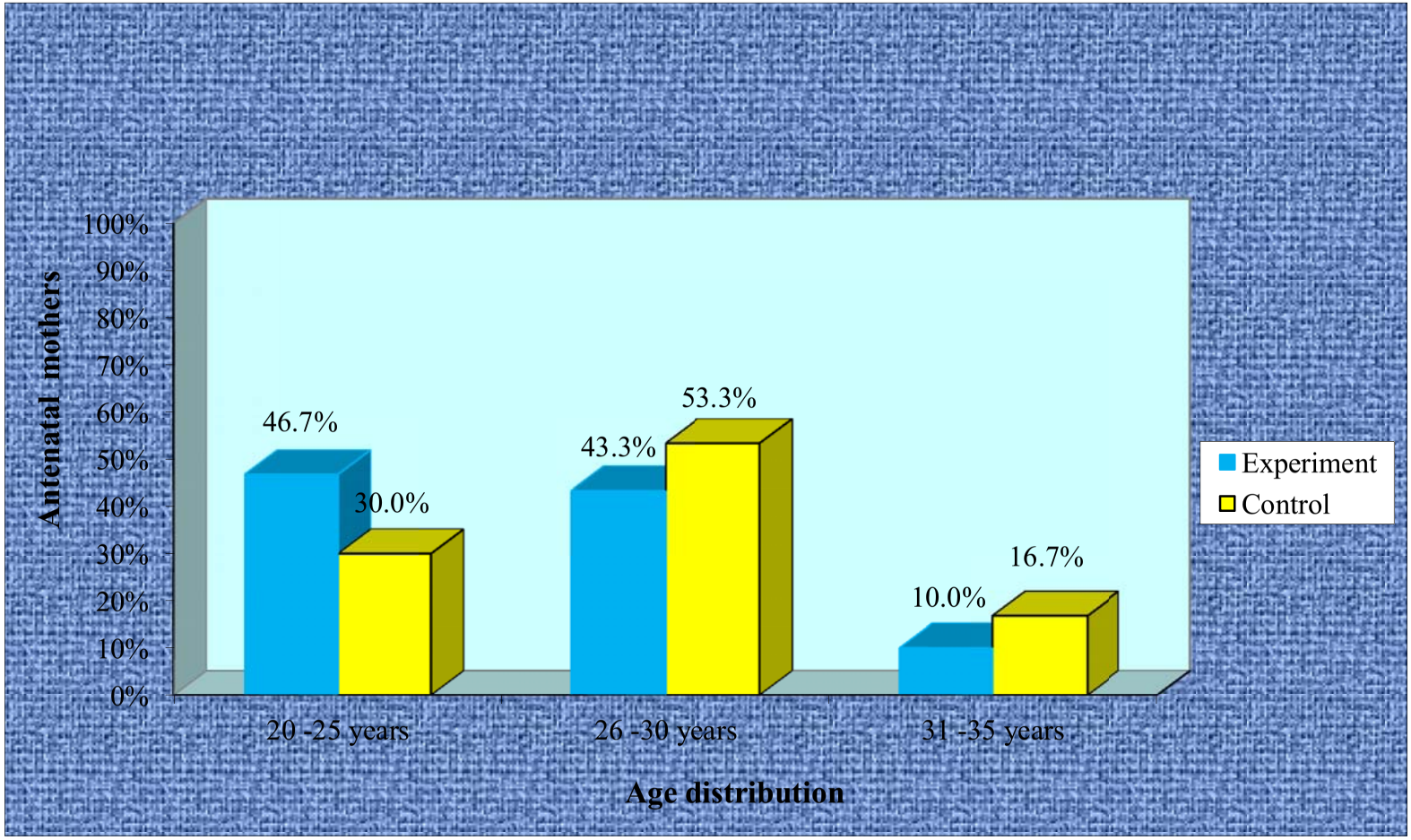


Fig 4.1: Age wise distribution of antenatal mothers

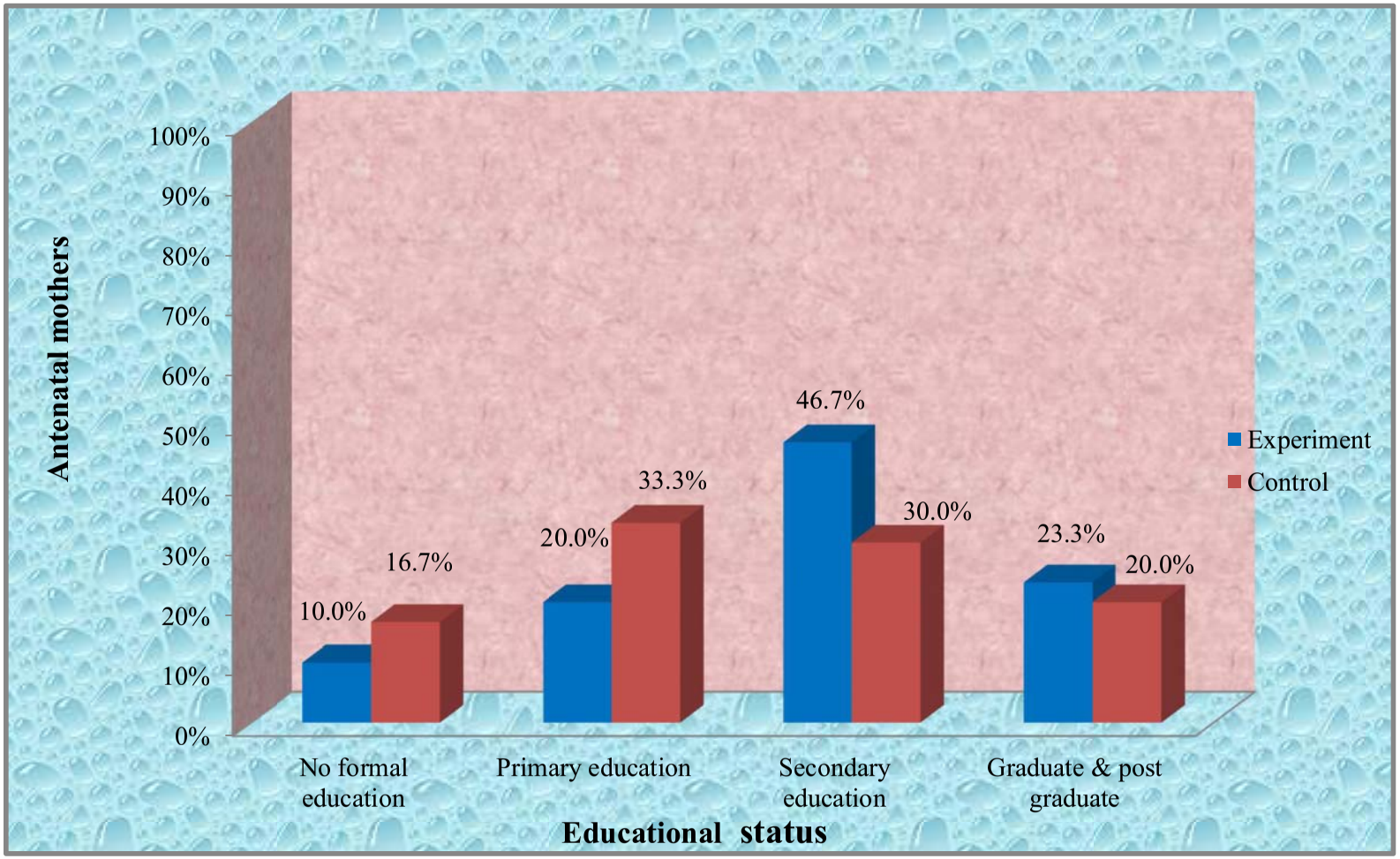


Figure 4.2: Educational status wise distribution of antenatal mothers

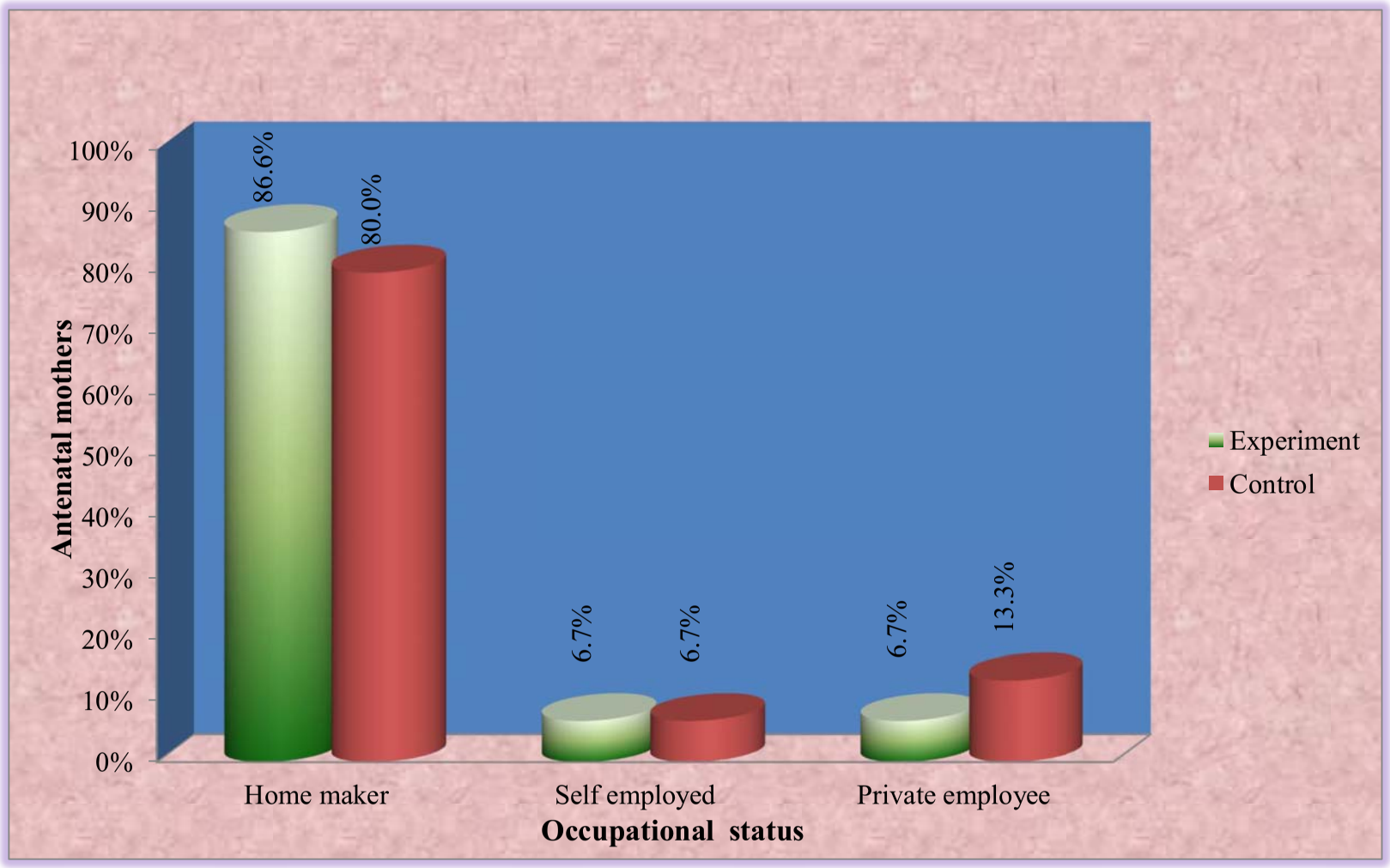


Figure 4.3: Occupational status wise distribution of antenatal mothers

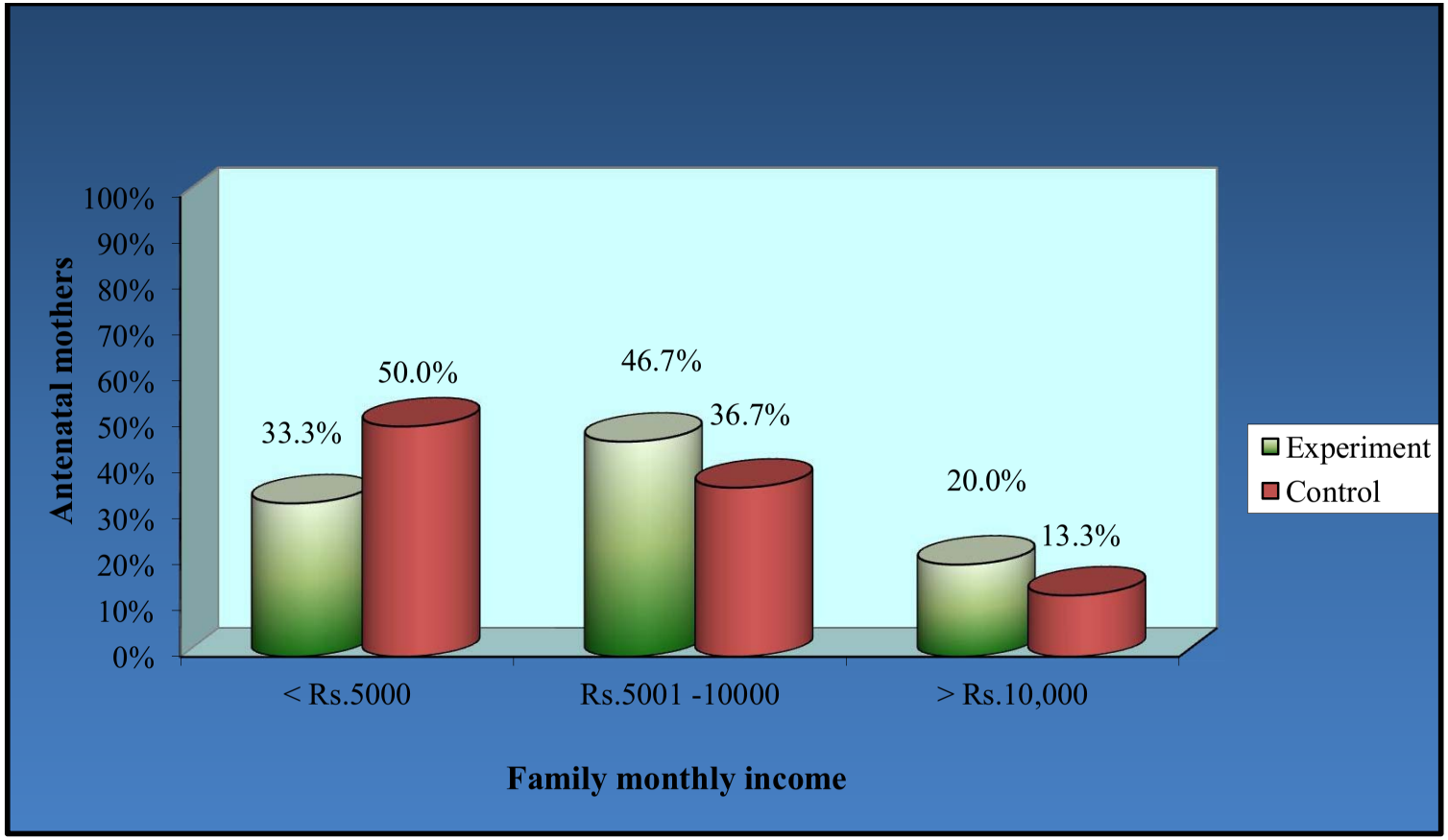


Figure 4.4: Family monthly income wise distribution of antenatal mothers

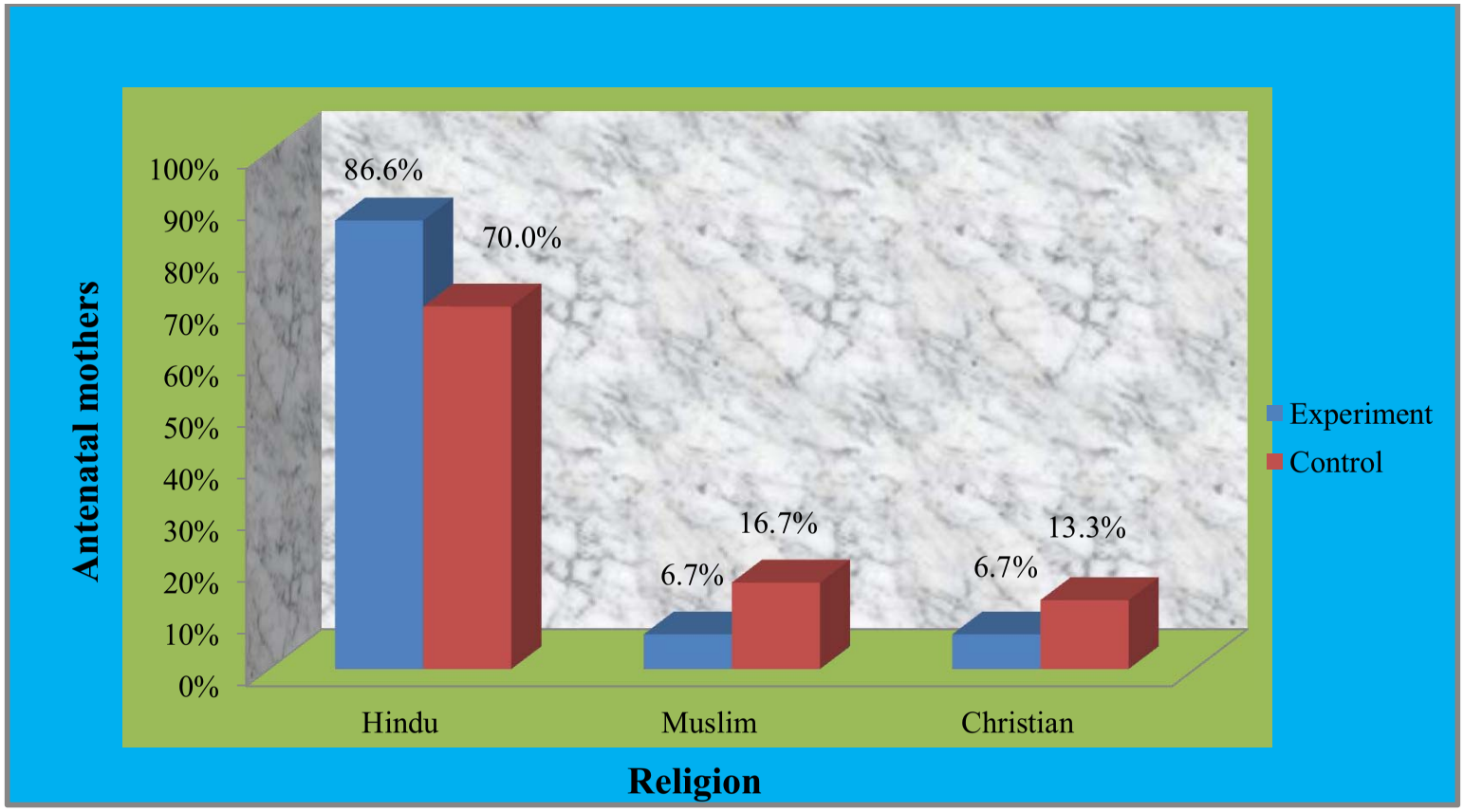


Figure 4.5: Religion wise distribution of antenatal mothers

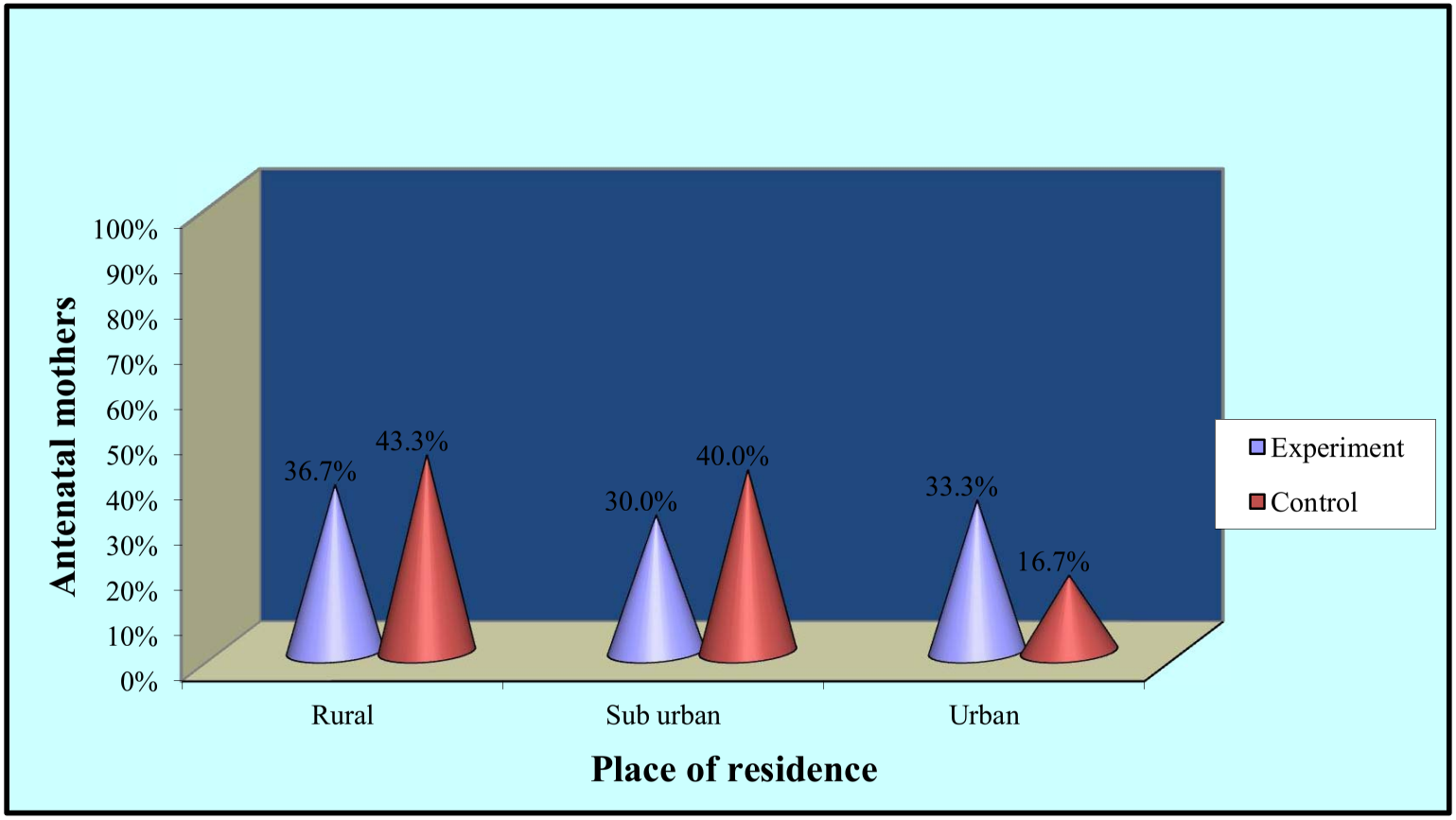


Figure 4.6: Residence wise distribution of antenatal mothers

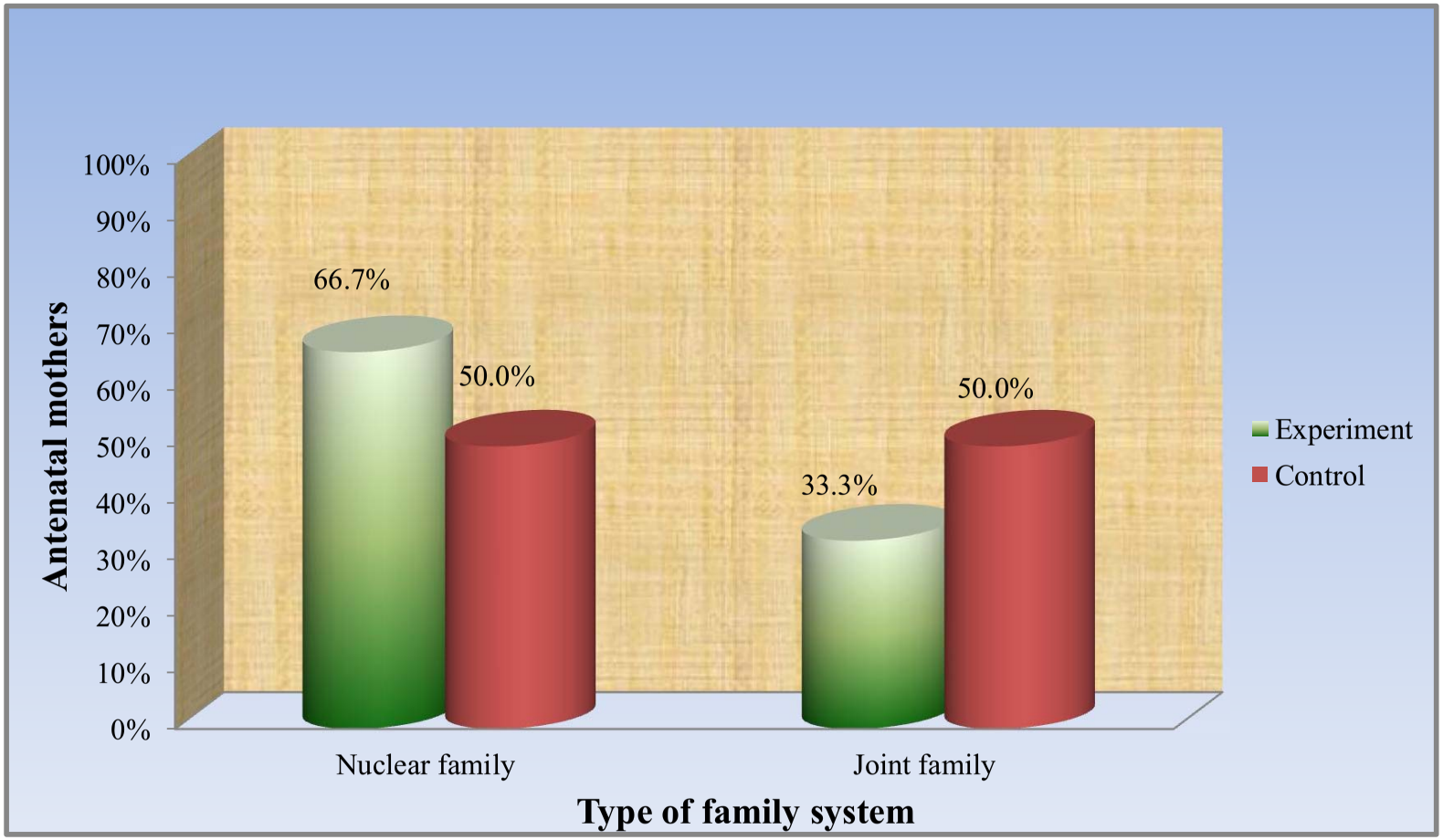


Figure 4.7: Type of family wise distribution of antenatal mothers

SECTION–1B) Obstetric variables

Table 4.2: Distribution of obstetric variables

obstetrical variable		Experiment(n=30)		Control(n=30)	
		frequency	in %	frequency	in %
Gravida	Primi	13	43.3	18	60.0
	Multi	17	56.7	12	40.0
Gestational age	27-31 weeks	7	23.3	9	30.0
	32-36 weeks	10	33.3	12	40.0
	37-40 weeks	13	43.4	9	30.0
Consumption of iron tablets during pregnancy	Regular	27	90.0	27	90.0
	Irregular	3	10.0	3	10.0

Among experimental group, regarding the gravida of the mothers majority 17 (56.7%) were multi gravida and in control group majority 18(60.0%) were primi gravida.

Regarding gestational age among experimental group, majority 13(43.3%) were between 37-40 weeks and in control group majority 12(40%) were between 32-36 weeks. Among experimental and control group, majority 27(90%) of mothers took tablets regularly during pregnancy.

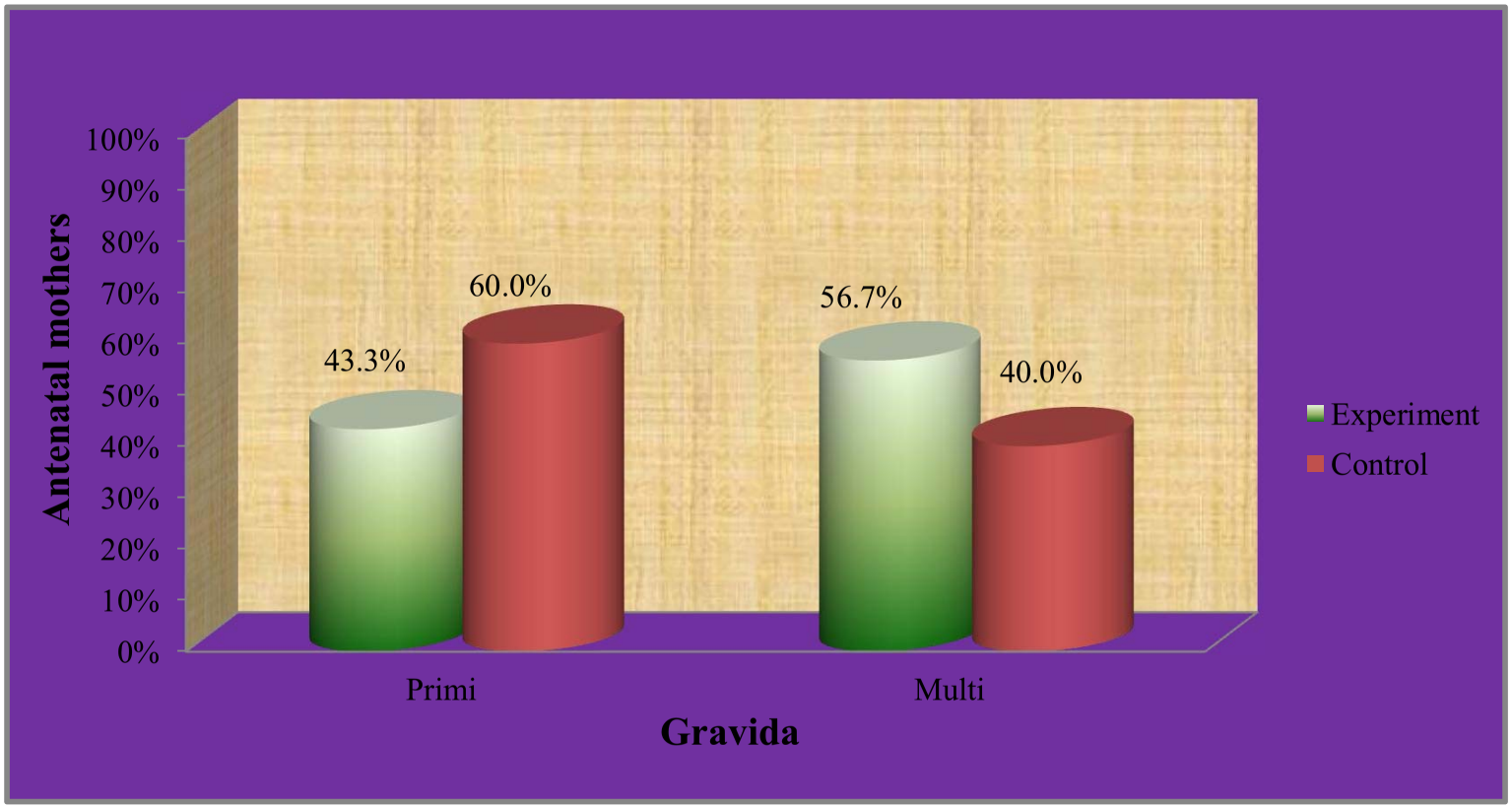


Figure 4.8: Gravida wise distribution of antenatal mothers

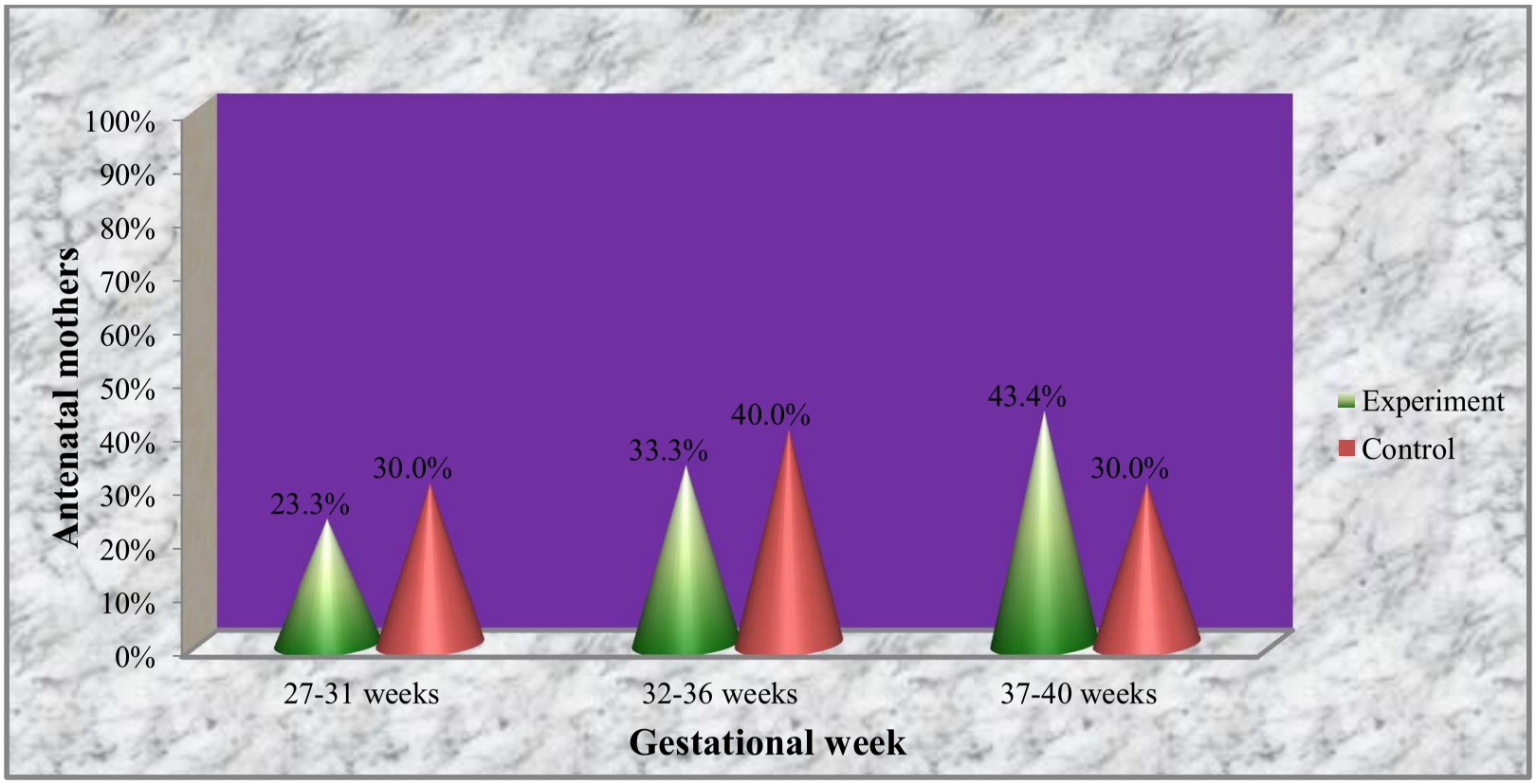


Figure 4.9: Gestational week wise distribution of antenatal mothers

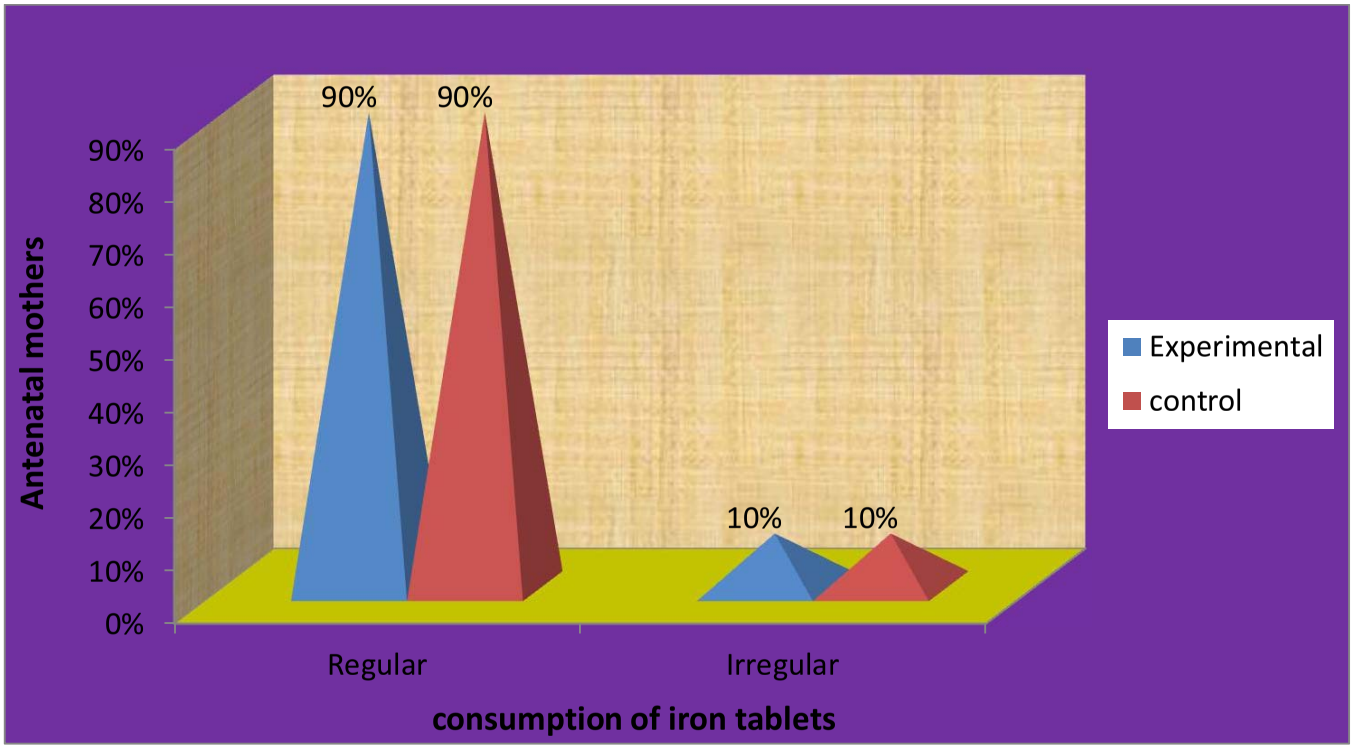


Figure 4.10: Distribution of consumption of iron tablets among antenatal mothers

SECTION – 1C) Personal variables

Table 4.3: Distribution of personal variables

Personal variables		Experiment(n=30)		Control(n=30)	
		frequency	in %	frequency	in %
Bowel habits	Once in a day/two	18	60.0	13	43.3
	Thrice a week	10	33.3	14	46.7
	Once / twice a week	2	6.7	3	10.0
Fluid intake	>1500ml	4	13.3	6	20.0
	<2000ml	7	23.3	9	30.0
	>2000ml	19	63.3	15	50.0
Dietary pattern	Vegetarian	2	6.7	5	16.7
	Non Vegetarian	4	13.3	7	23.3
	Mixed	24	80.0	18	60.0
Daily activities	Regular walking	9	30.0	6	20.0
	Once in a while	6	20.0	9	30.0
	Not at all	15	50.0	15	50.0
Knowledge of health benefits of honey	Yes	18	60.0	20	66.7
	No	12	40.0	10	33.3
Relief measures	Home remedies	19	63.3	17	56.7
	Medical help	2	6.7	4	13.3
	None	9	30.0	9	30.0

In experimental group, regarding bowel habit of the mothers, majority 18(60.0%) had bowel habits of once in a day/two and in control group, 14(46.7%) of had bowel habits of thrice in a week. Considering fluid intake in experimental group 19(63.3%) were >2000ml and among control group 15(50%) were >2000ml per day.

Regarding dietary pattern among experimental group majority 24(80%) of the mothers and in control group, 18(60%) were mixed diet. Regarding the daily activities in both experimental and control group (15) 50% of mothers not at all doing any exercises.

Among experimental group majority of the mother (18) 60% and in control group 20(66.7%) had knowledge about health benefits of honey. Regarding relieving measures for constipation both experimental group (19) 63.3% and control group (17) 56.75% took home remedies.

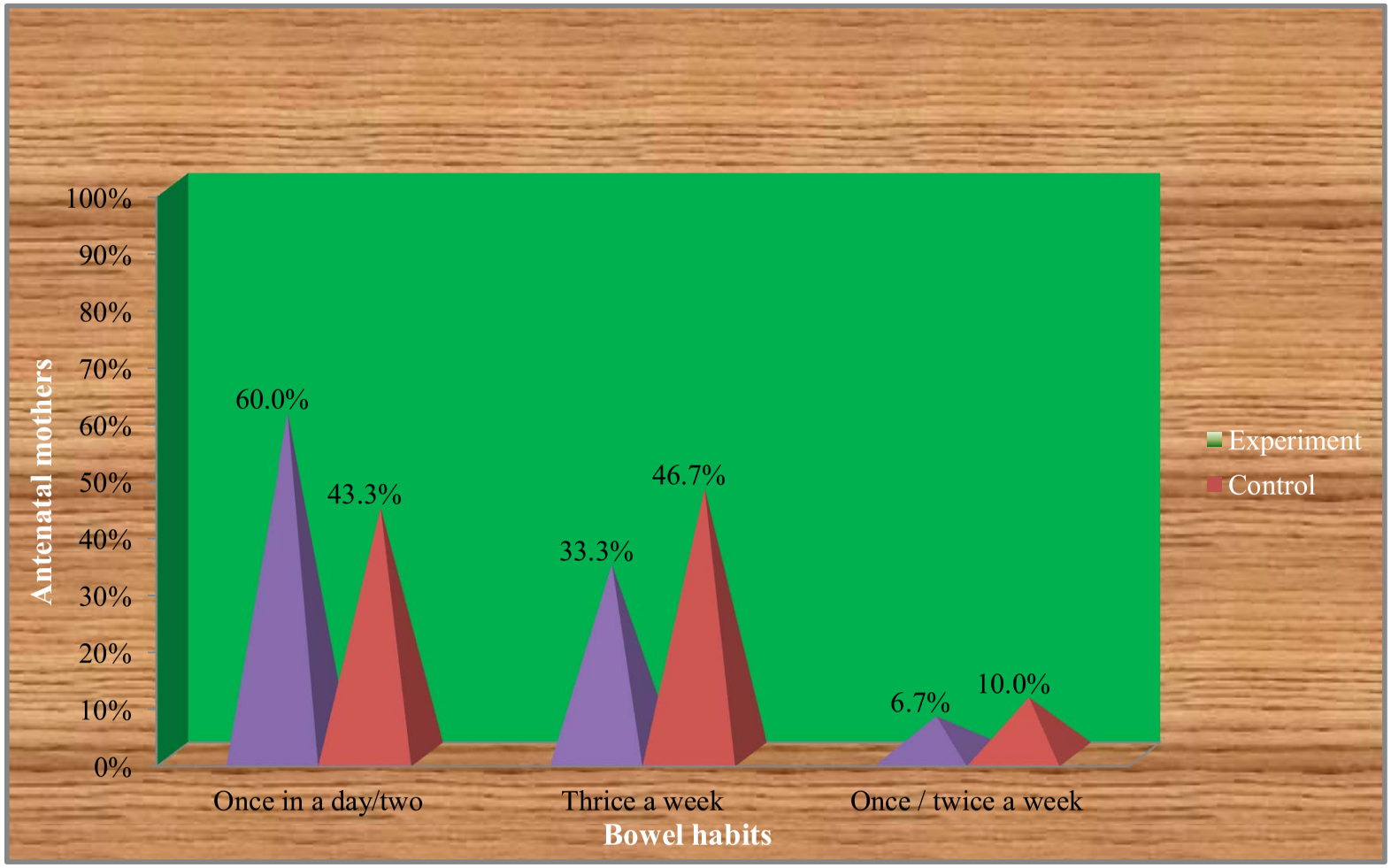


Figure 4.11: Bowel habits wise distribution of antenatal mothers

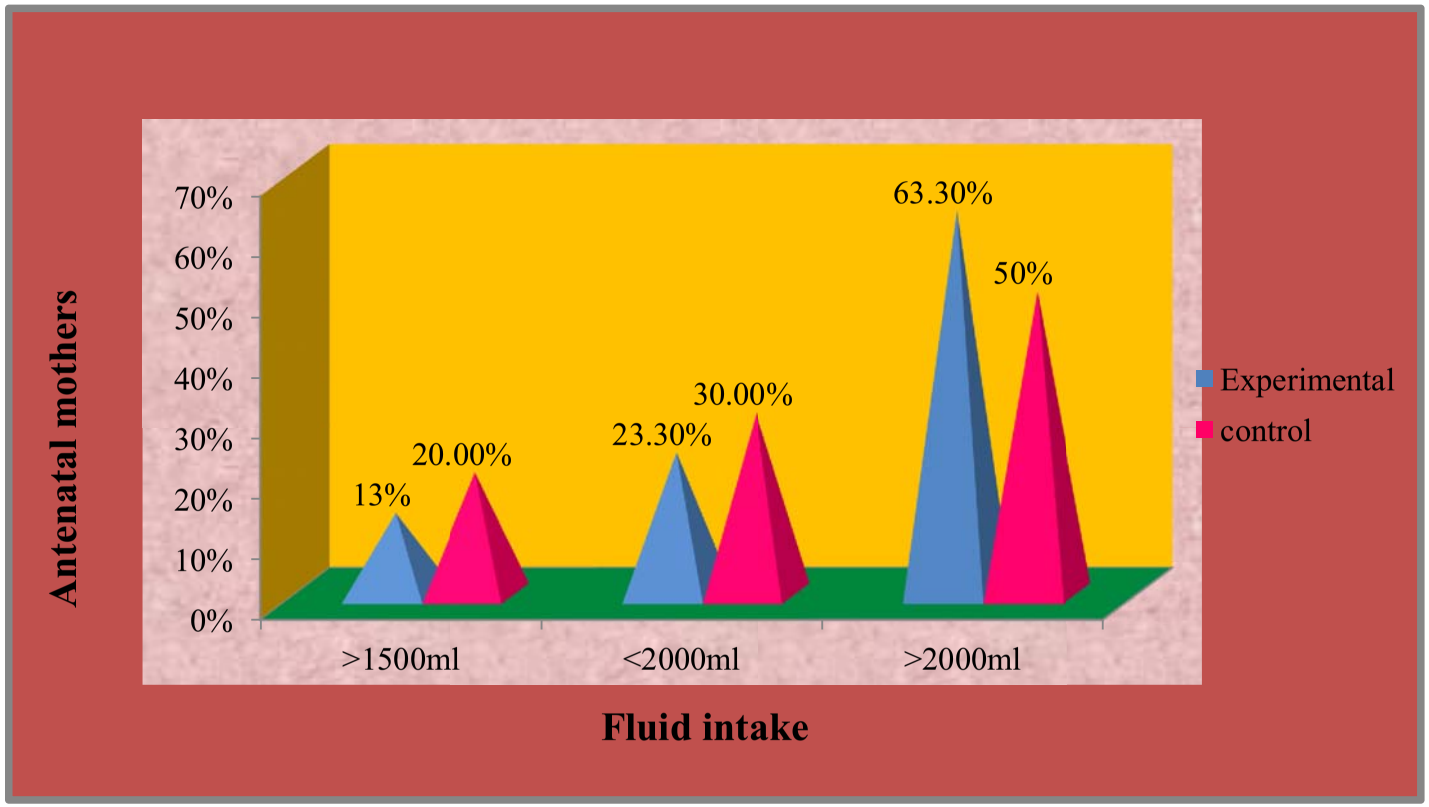


Figure 4.12: Fluid intake wise distribution of antenatal mothers

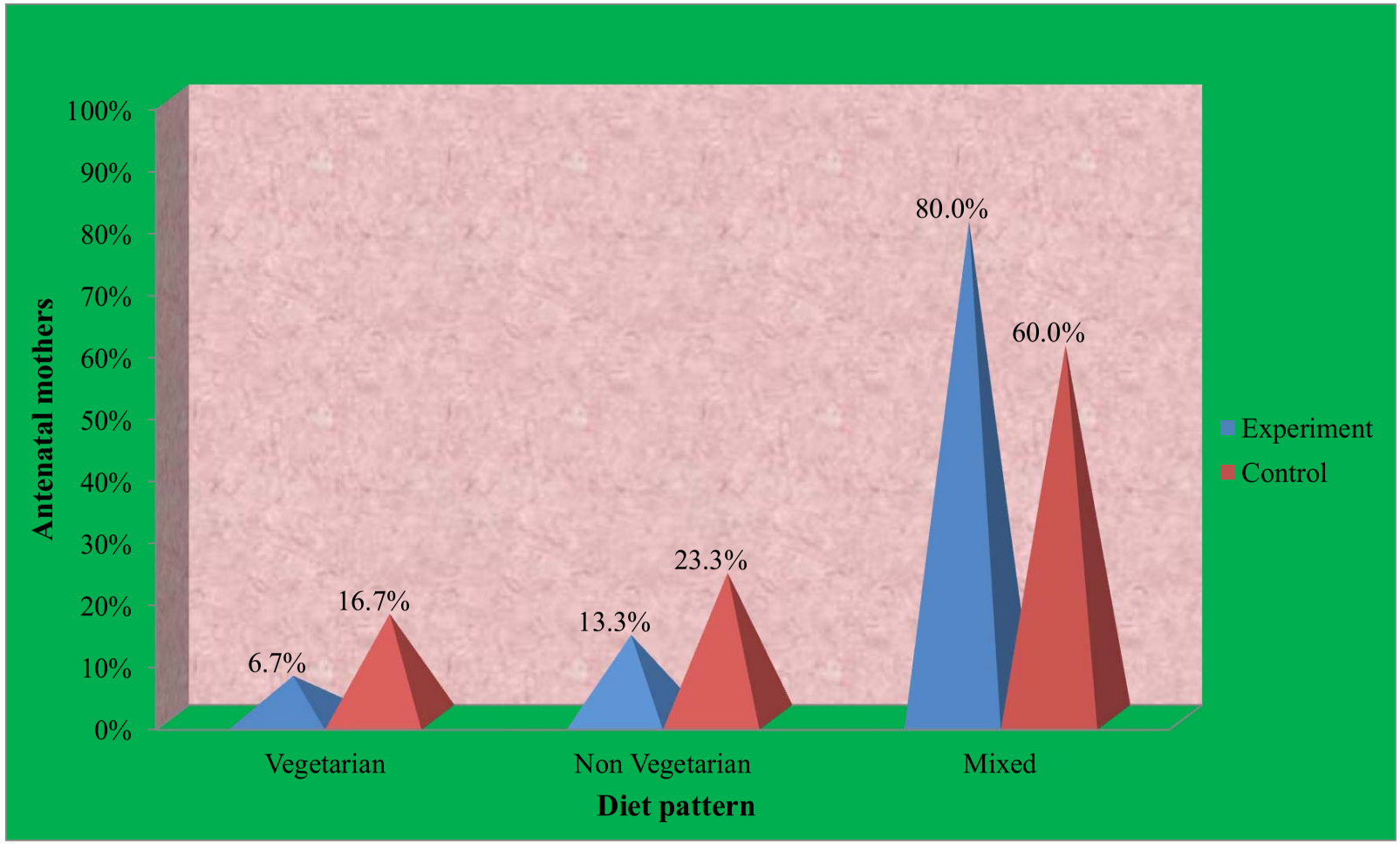


Figure 4.13: Diet pattern wise distribution of antenatal mothers

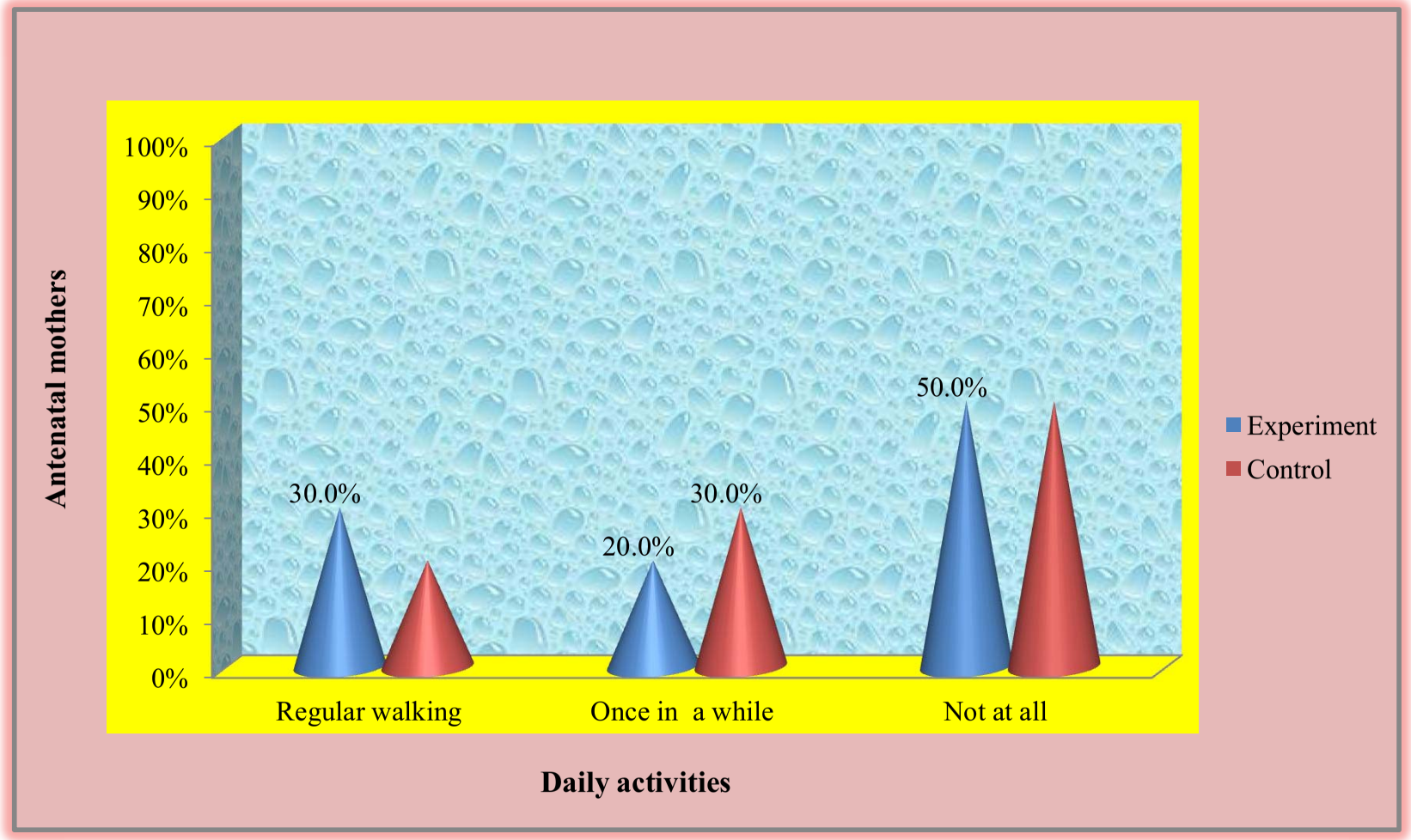


Figure 4.14: Daily activities wise distribution of antenatal mothers

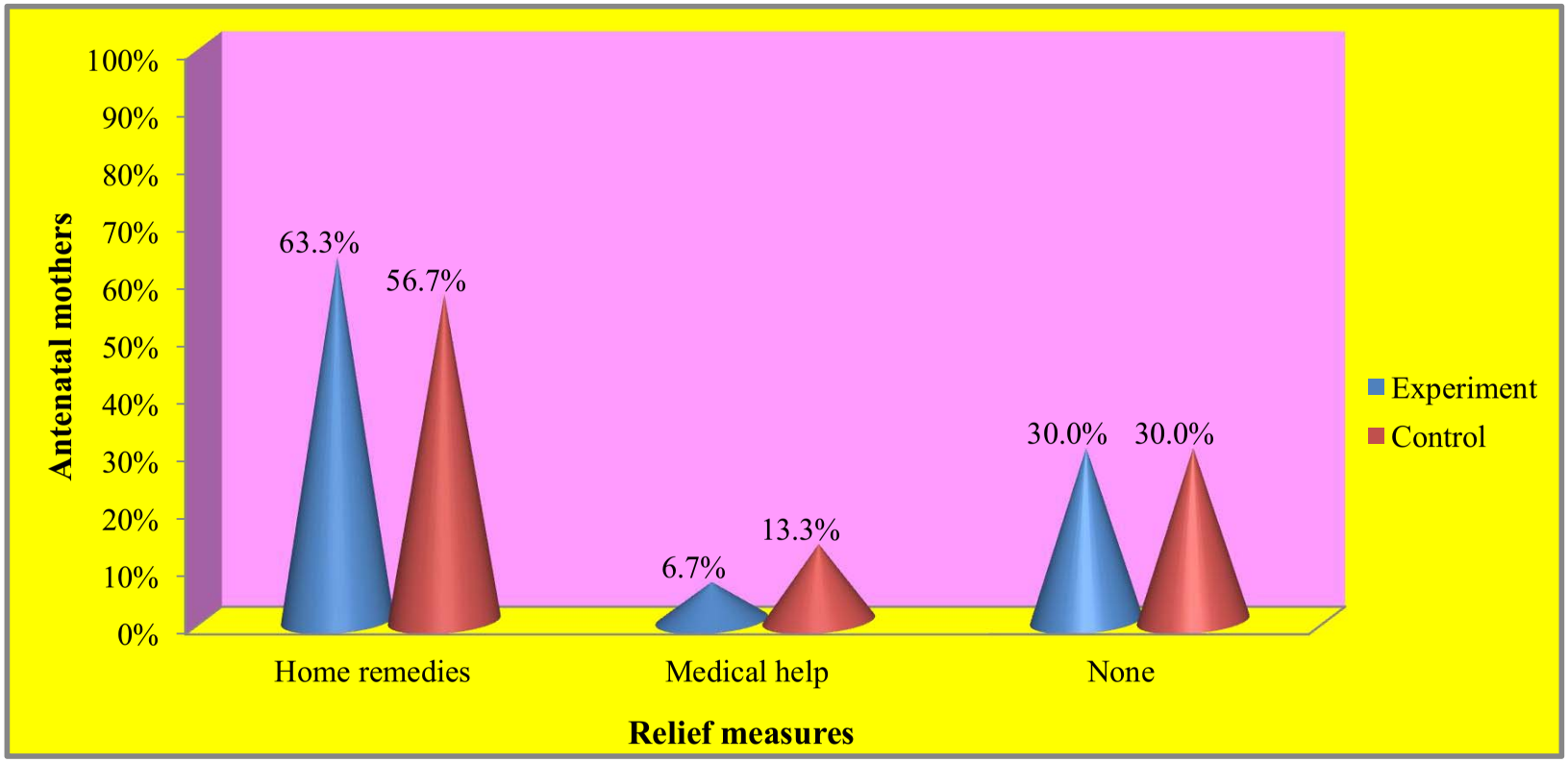


Figure 4.15: Relief measures wise distribution of antenatal mothers

Section 2) Level of constipation in pre-test and post-test among experimental and control group.

Table 4.4 Pre-test level of constipation in relation to sign and symptoms of constipation

Clinical signs and symptoms of constipation		Maximum score	Mean	SD	constipation score
Experimental group	Abdominal distension or bloating	4	0.77	.84	19.3%
	Change in amount of gas passed rectally	4	0.4	.63	10.0%
	Less frequent bowel movements	4	1.6	.68	40.0%
	Oozing liquid stool	4	0	.00	0.0%
	Rectal fullness or pressure	4	2.95	.56	73.8%
	Rectal pain with bowel movement	4	0.37	.76	9.3%
	Small volume of stool	4	2.4	.77	60.0%
	Unable to pass stool	4	2.58	.45	64.5%
	Total	32	11.07	2.75	34.6%
Control group	Abdominal distension or bloating	4	0.98	.91	24.5%
	Change in amount of gas passed rectally	4	.53	.93	13.3%
	Less frequent bowel movements	4	1.53	1.01	38.3%
	Oozing liquid stool	4	.00	.00	0.0%
	Rectal fullness or pressure	4	2.93	.69	73.3%
	Rectal pain with bowel movement	4	.50	.82	12.5%
	Small volume of stool	4	2.40	.63	60.0%
	Unable to pass stool	4	2.60	.62	65.0%
	Total	32	11.47	2.11	35.8%

Among experimental group in relation to signs and symptoms of constipation in pre-test majority of the mother 73.8% had rectal fullness or pressure, 64.5% had unable to pass stool, 60.0% had small volume of stool, 40.0% had less frequent bowel movements, 19.3% had abdominal distension or bloating, 10% had change in amount of gas passed rectally, 9.3% had rectal pain with bowel movements and none of them had oozing liquid stool. In pre-test, total constipation score was 34.6%.

Among control group in relation to signs and symptoms of constipation**,** in pre-test majority of the mother 73.3% had rectal fullness or pressure, 65.0% had unable to pass stool, 60.0% had small volume of stool, 38.3% had less frequent bowel movements, 24.4% had abdominal distension or bloating, 13.3% had change in amount of gas passed rectally, 12.5% had rectal pain with bowel movements and none of them had oozing liquid stool. In control group total constipation score was 35.8%.

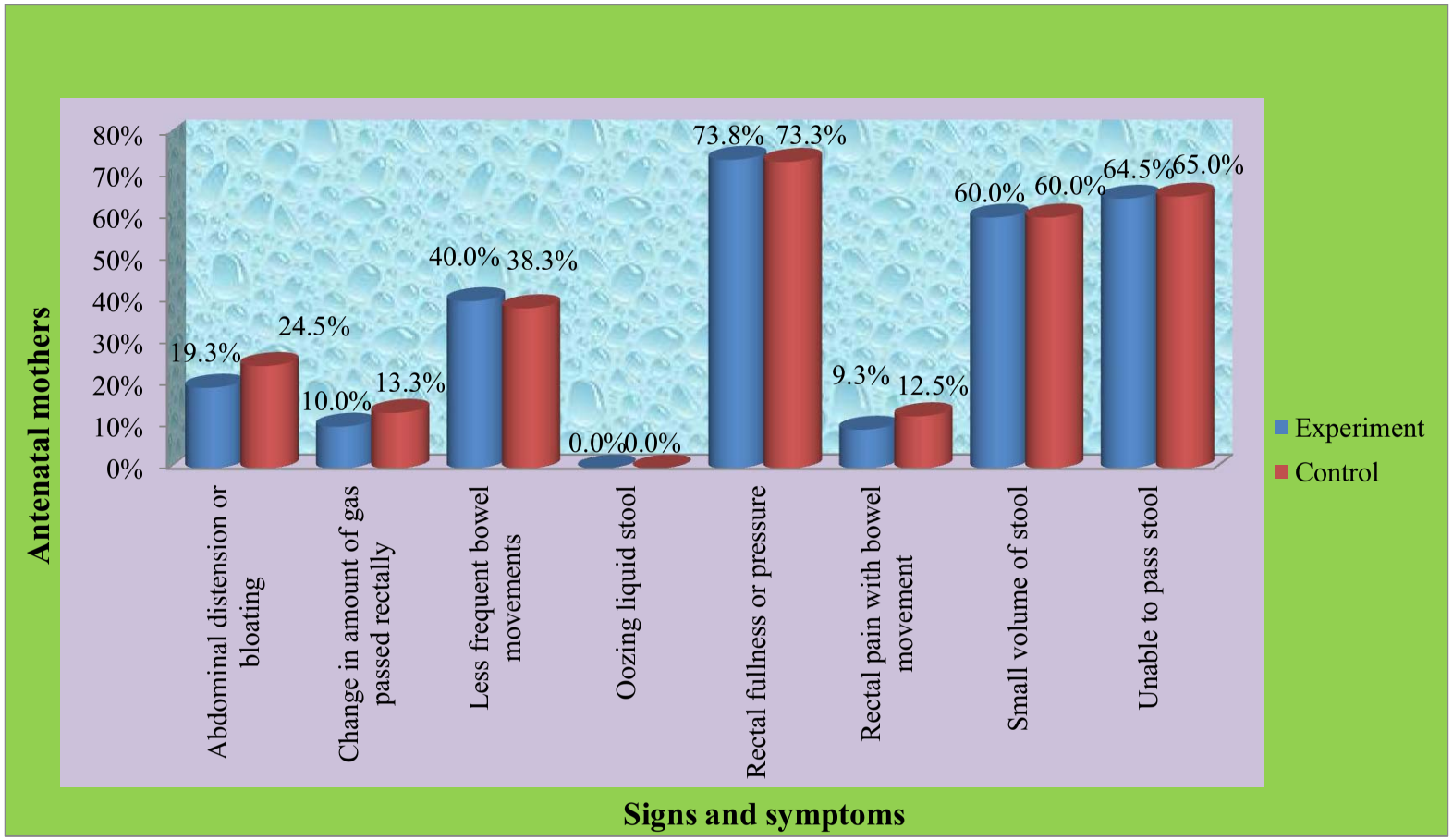


Figure 4.16: Pre-test level of constipation in relation to signs and symptoms

Table 4.5: Pre-test level of constipation in relation to constipation score

Level of constipation	Experimental		Control		
	frequency	in %	frequency	in %	Chi square test
None to Minimal	3	10.0	4	13.3	$\chi 2=0.16$ p=0.68 DF=1
Minimal to Moderate	27	90.0	26	86.7	
Moderate to Severe	0	0.0	0	0.0	
Total	30	100.	30	100.	

In pre-test, among experimental group, 10.0% of the antenatal mothers had none to minimal score, 90.0% of them had minimal to moderate score.

Among control group, 13.3% of the antenatal mothers had none to minimal score, 86.7% of them had minimal to moderate score. Statistically there was no significant difference between experimental and control group. It was confirmed using chi square test.

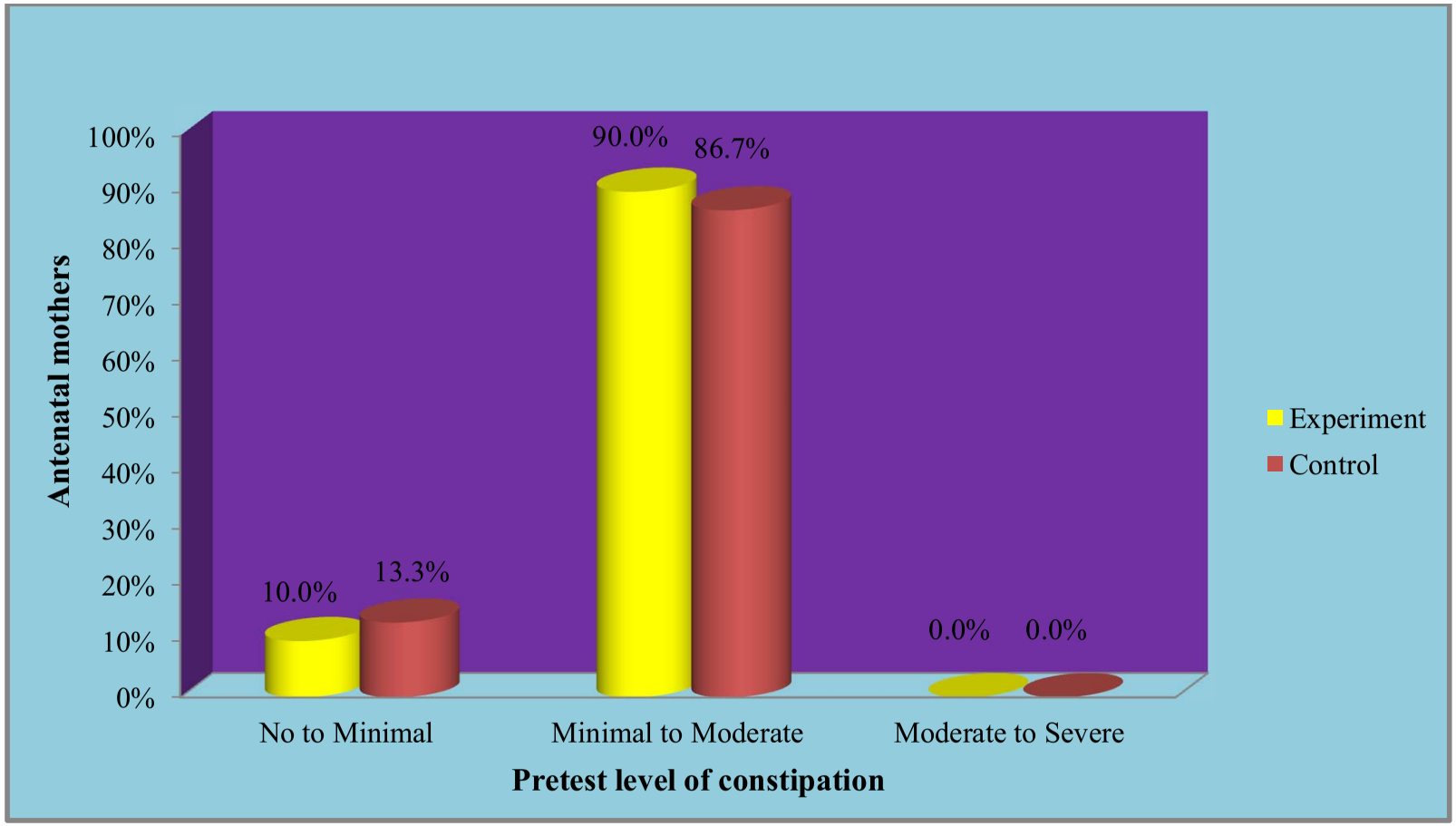


Figure: 4.17 Pre-test level of constipation in relation to constipation score

Table 4.6: Post-test level of constipation in relation to signs and symptoms of constipation

Signs and symptoms of constipation		Maximum score	Mean	SD	constipation score
Experimental group	Abdominal distension or bloating	4	0.33	.61	8.3%
	Change in amount of gas passed rectally	4	0.00	.00	0.0%
	Less frequent bowel movements	4	0.65	.81	16.3%
	Oozing liquid stool	4	0.00	.00	0.0%
	Rectal fullness or pressure	4	1.13	.89	28.3%
	Rectal pain with bowel movement	4	0.00	.00	0.0%
	Small volume of stool	4	0.79	0.94	19.8%
	Unable to pass stool	4	0.97	1.03	24.3%
	Total	32	3.87	2.92	12.1%
Control group	Abdominal distension or bloating	4	0.93	.87	23.3%
	Change in amount of gas passed rectally	4	0.37	.76	9.3%
	Less frequent bowel movements	4	1.27	.90	31.8%
	Oozing liquid stool	4	0.00	.00	0.0%
	Rectal fullness or pressure	4	2.40	.76	60.0%
	Rectal pain with bowel movement	4	0.20	.61	5.0%
	Small volume of stool	4	2.23	.81	55.8%
	Unable to pass stool	4	2.20	.79	55.0%
	Total	32	9.60	3.25	30.3%

In post test, among experimental group the signs and symptoms of constipation percentage reduced after honey administration. Abdominal distension or bloating 8.3%, less frequent bowel movements 16.3%, rectal fullness or pressure 28.3%, unable to pass stool 24.3%, small volume of stool 19.8%, and none of them complaint of change in amount of gas passed rectally and rectal pain with bowel movements. In post-test, total constipation score was 12.1%.

In post test, among control group in relation to signs and symptoms of constipation in post-test, abdominal distension or bloating 23.3%, change in amount of gas passed rectally 9.3%, less frequent bowel movements 31.8%, rectal fullness or pressure 60 %, rectal pain with bowel movements 5.0% unable to pass stool 55%, small volume of stool 55.8%. In post-test, total constipation score was 30.3%.

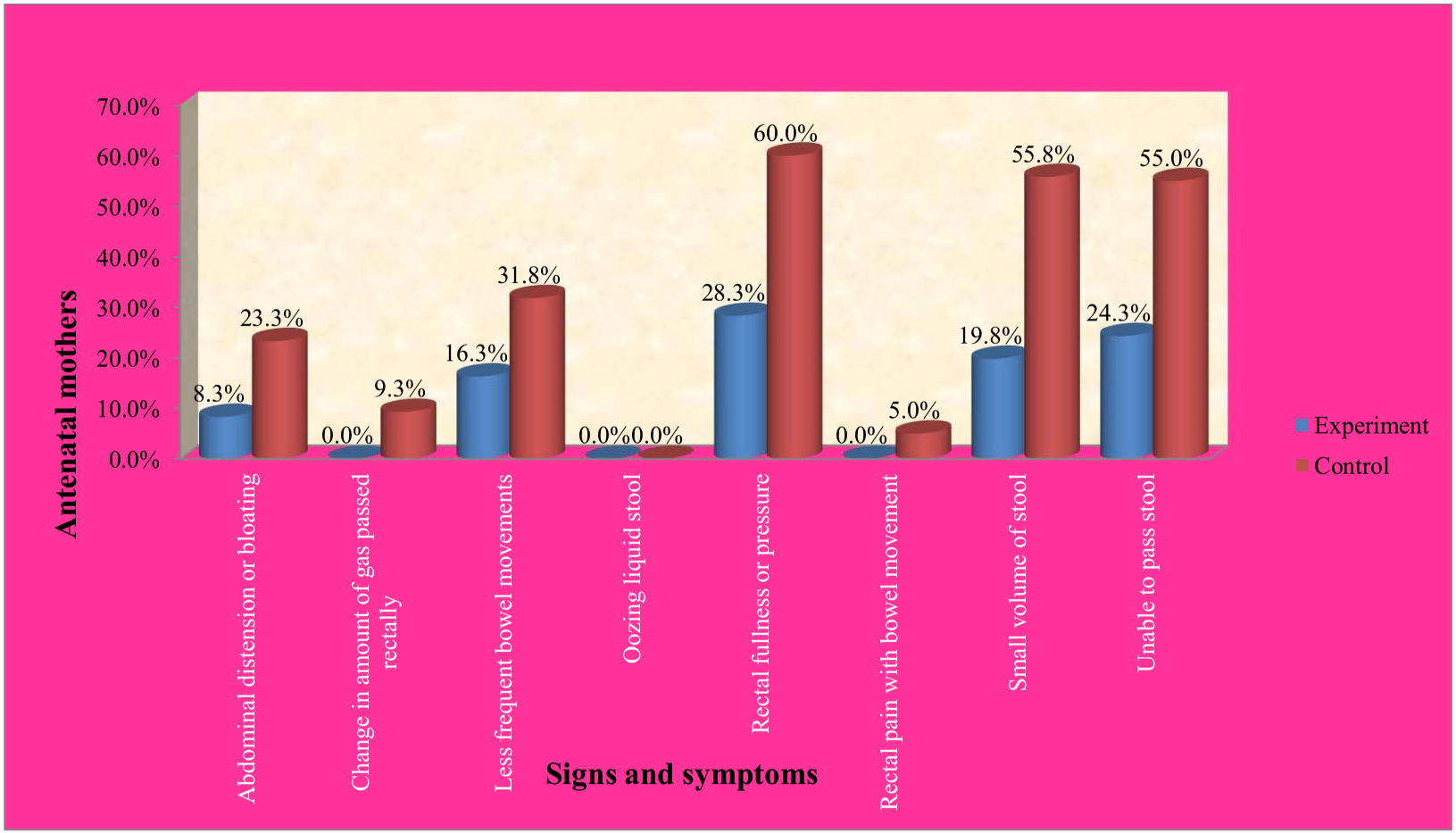


Figure 4.18:Post-test level of constipation in relation to signs and symptoms

Table 4.7: Post-test level of constipation in relation to constipation score

Level of constipation	Experimental		Control		Chi square test
	frequency	in %	frequency	in %	
None to Minimal	25	83.3	12	40	**$\chi 2$=11.91 P=0.001*** DF=1**
Minimal to Moderate	5	16.7	18	60	
Moderate to Severe	0	0.0	0	0.0	
Total	30	100	30	100	

- significant at P≤0.05
- highly significant at P≤0.01
- very high significant at P≤0.001

In post-test, among experimental group, 83.3% of antenatal mothers were in none to minimal score, 16.7% of them were minimal to moderate score.

Among control group, 40.0% of the antenatal mothers were in none to minimal score, 60.0% of them were in minimal to moderate score. It was confirmed using chi square test $\chi 2$=11.91 P=0.001. Statistically there is significant difference between experimental and control group

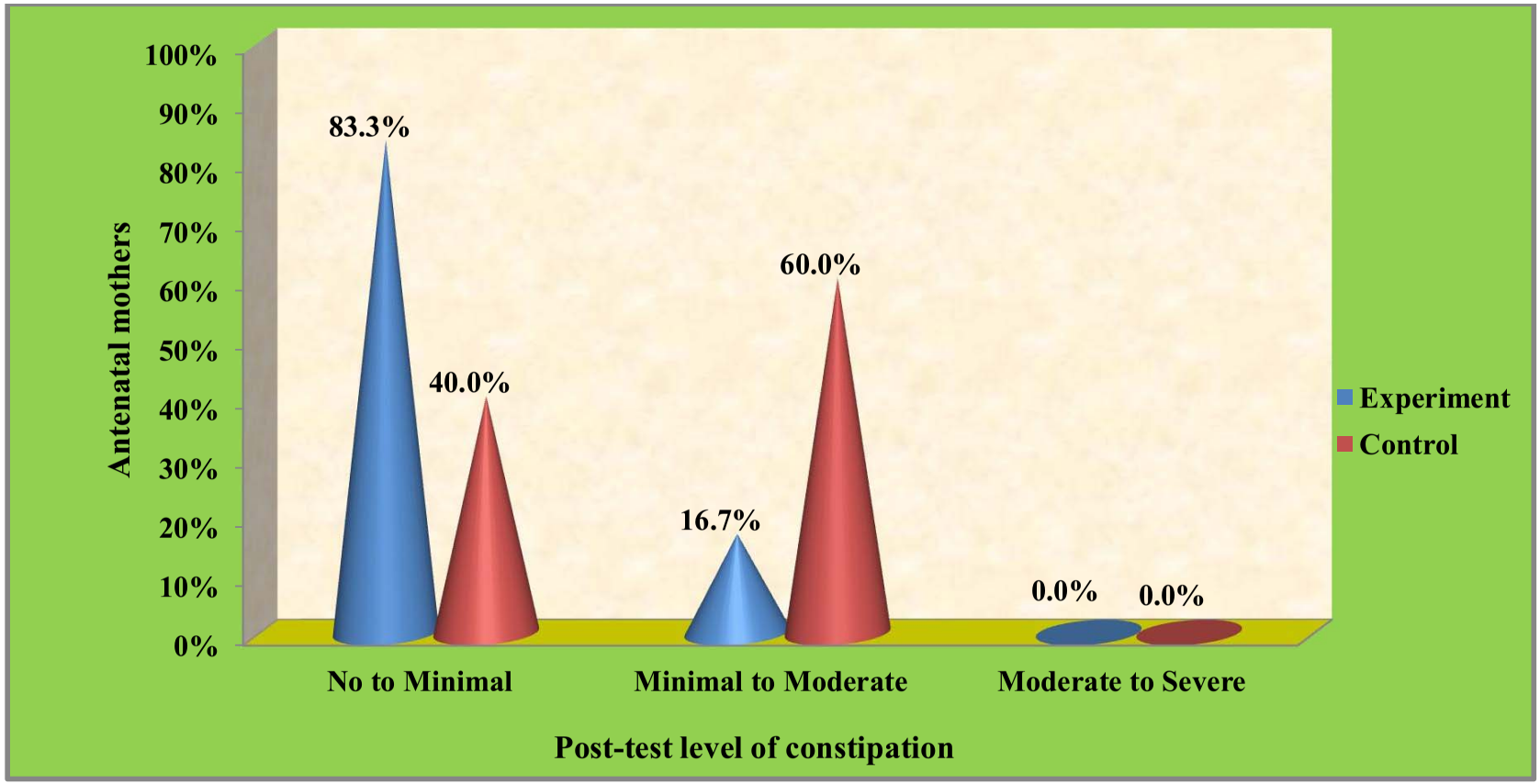


Figure: 4.19 Post-test level of constipation in relation to constipation score

SECTION 3: Comparison of level of constipation among experimental and control group.

Table 4.8: Comparison of pre-test and post-test in experimental group

Signs and symptoms	Pretest		Posttest		Mean difference	Student Paired t-test
	Mean	SD	Mean	SD		
Abdominal distension or bloating	0.77	.84	0.33	.61	0.44	**t=3.67 p=0.01****
Change in amount of gas passed	0.4	.63	0.00	.35	0.40	**t=2.36 p=0.05***
Less frequent bowel movements	1.6	.68	0.65	.81	0.95	**t=4.82 p=0.001*****
Oozing liquid stool	0	.00	0.00	.00	0.00	t=0.00 p=1.00
Rectal fullness or pressure	2.95	.56	1.13	.89	1.82	**t=11.08 p=0.001*****
Rectal pain with bowel movement	0.37	.76	0.00	.25	0.37	**t=2.19 p=0.05***
Small volume of stool	2.4	.77	0.79	1.03	1.61	**t=9.14 p=0.001*****
Unable to pass stool	2.58	.45	0.97	.94	1.61	**t=9.25 p=0.001*****

- **significant at P≤0.05**
- **highly significant at P≤0.01**
- **very highly significant at P≤0.001**

Pre-test and post-test mean constipation score among experimental group mothers were analyzed using student paired t-test. It is statistically significant.

Table 4. 9: Comparison of pre-test and post-test among control group

Signs and symptoms	Pretest		Posttest		Mean difference	Student Paired t-test
	Mean	SD	Mean	SD		
Abdominal distension /bloating	0.98	.91	0.93	.87	0.05	t=0.10 p=0.88
Change in amount of gas passed	.53	.93	0.37	.76	0.16	t=1.17 p=0.27
Less frequent bowel movements	1.53	1.01	1.27	.90	0.26	t=1.48 p=0.17
Oozing liquid stool	.00	.00	0.00	.00	0.00	t=0.00 p=0.00
Rectal fullness or pressure	2.93	.69	2.40	.76	0.53	t=1.91 p=0.06
Rectal pain with bowel movement	.50	.82	0.20	.61	0.30	t =1.59 p=0.10
Small volume of stool	2.40	.63	2.23	.81	0.17	t=1.61 p=0.18
Unable to pass stool	2.60	.62	2.20	.79	0.40	t=1.84 p=0.07

Pre-test and post-test mean constipation score among control group mothers were analyzed using student paired t-test. It is not statistically significant.

Table 4. 10: Comparison of experimental and control group

		Constipation score		Mean difference	Student paired t-test
		Mean	*SD*		
Experimental	pre-test	11.07	2.75		**t=14.79**
	post-test	3.87	2.92	7.20	**p=0.001 *****
Control	pre-test	11.47	2.11		t=1.94
	post-test	9.60	3.25	1.87	p=0.06

- **significant at P≤0.05**
- **highly significant at P≤0.01**
- **very highly significant at P≤0.001**

In pre-test among experimental group, mean constipation score was 11.07 and in post-test score was 3.87. Difference was 7.20 score. The difference between pre-test and post-test was t=14.79, p value=0.001 and it is **statistically significant**. Difference between pre-test and post-test score was analysed using Student paired t-test.

In pre-test among control group, mean constipation score was 11.47 and post-test score was 9.60 and difference was 1.87 score. The difference between pre-test and post-test score was small and it was not statistically significant. Difference between pre-test and post-test score was analysed using Student paired t-test.

Table 4. 10: Comparison of experimental and control group

		Constipation score		Mean difference	Student paired t-test
		Mean	*SD*		
Experimental	pre-test	11.07	2.75		**t=14.79**
	post-test	3.87	2.92	7.20	**p=0.001 *****
Control	pre-test	11.47	2.11		t=1.94
	post-test	9.60	3.25	1.87	p=0.06

- **significant at P≤0.05**
- **highly significant at P≤0.01**
- **very highly significant at P≤0.001**

In pre-test among experimental group, mean constipation score was 11.07 and in post-test score was 3.87. Difference was 7.20 score. The difference between pre-test and post-test was t=14.79, p value=0.001 and it is **statistically significant**. Difference between pre-test and post-test score was analysed using Student paired t-test.

In pre-test among control group, mean constipation score was 11.47 and post-test score was 9.60 and difference was 1.87 score. The difference between pre-test and post-test score was small and it was not statistically significant. Difference between pre-test and post-test score was analysed using Student paired t-test.

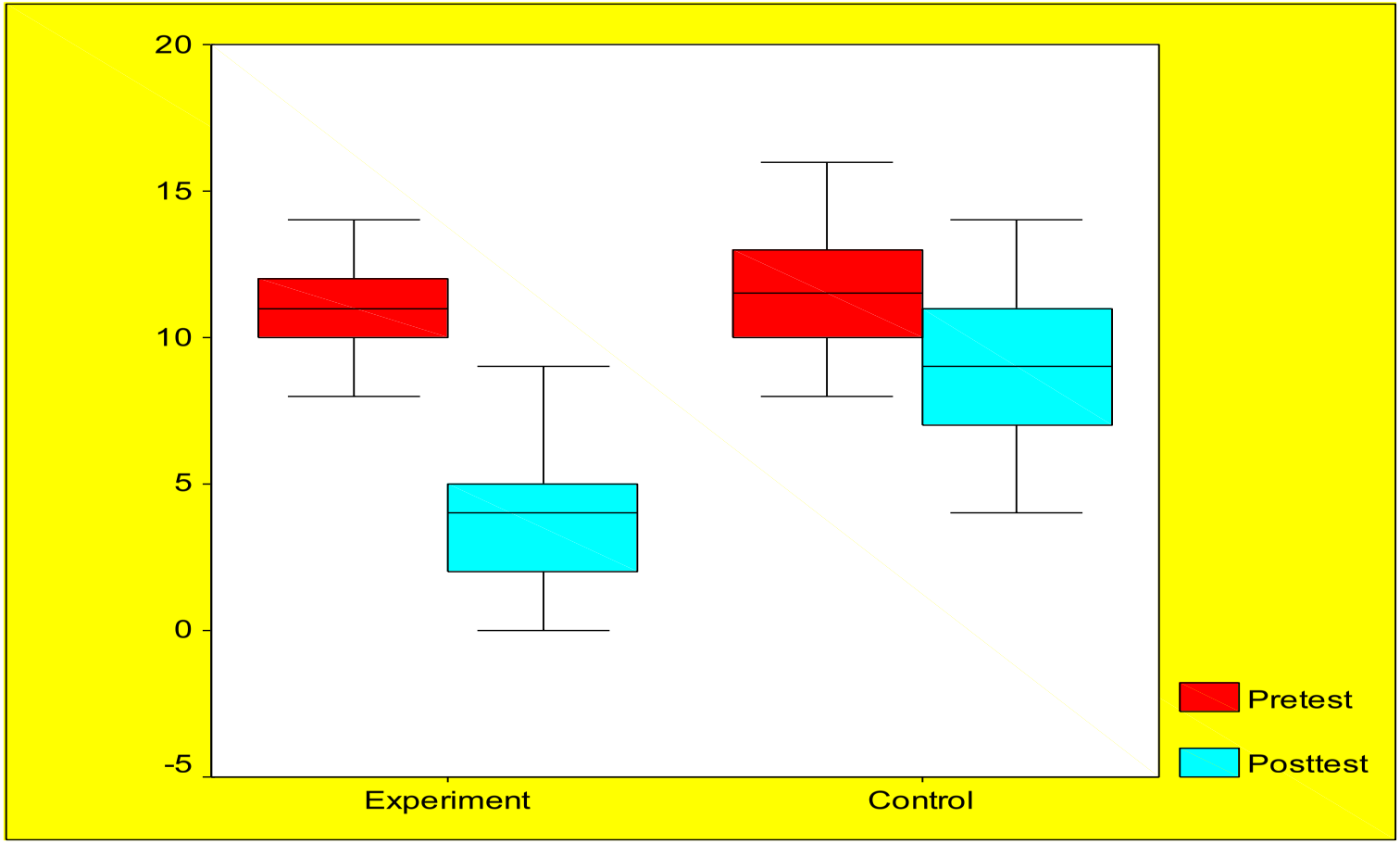


Fig 4.20: Box-plot compares the pre-test and post-test mean constipation score among experimental and control groups

SECTION 3: Effectiveness of honey on constipation

Table 4.12: Effectiveness of honey in reduction of signs and symptoms of constipation

Signs and symptoms	Experimental			Control		
	Pre-test	Post-test	Difference	Pre-test	Post-test	Difference
Abdominal distension or bloating	19.3%	8.3%	**11.0%**	24.5%	23.3%	**1.2%**
Change in amount of gas passed rectally	10.0%	0.0%	**10.0%**	13.3%	9.3%	**4.0%**
Less frequent bowel movements	40.0%	16.3%	**23.7%**	38.3%	31.8%	**6.5%**
Oozing liquid stool	0.0%	0.0%	**0.0%**	0.0%	0.0%	**0.0%**
Rectal fullness or pressure	73.8%	28.3%	**45.5%**	73.3%	60.0%	**13.3%**
Rectal pain with bowel movement	9.3%	0.0%	**9.3%**	12.5%	5.0%	**7.5%**
Small volume of stool	60.0%	19.8%	**40.2%**	60.0%	55.8%	**4.2%**
Unable to pass stool	64.5%	24.3%	**40.2%**	65.0%	55.0%	**10.0%**
OVERALL	34.6%	12.1%	**22.5%**	35.8%	30.3%	**5.5%**

In experimental group the difference between pre-test and post-test was 22.5 % and in control group 5.5%. **This shows the effectiveness honey in relieving constipation.**

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Table 4. 13: Effectiveness of honey in reduction of constipation

Group		*Max score*	*Mean constipation score*	Mean Difference in constipation score with 95% Confidence interval	Percentage difference of constipation score with 95% Confidence interval
Experimental	Pre-test	32	11.07	7.20(6.55 – 7.85)	22.5 % (20.5% – 24.5%)
	Post-test	32	3.87		
Control	Pre-test	32	11.47	1.87(0.36 – 3.37)	5.8% (1.1% –10.5%)
	Post-test	32	9.60		

In experimental group, mean difference between pre-test and post-test constipation score was 7.20 and percentage difference of constipation 22.5% (95% CI 20.5%–24.5%). This shows the effectiveness of honey in relieving constipation. Among control group mothers, mean difference between pre-test and post-test constipation score was 1.87 and percentage difference of constipation 5.8% (95% CI 1.1% –10.5%).

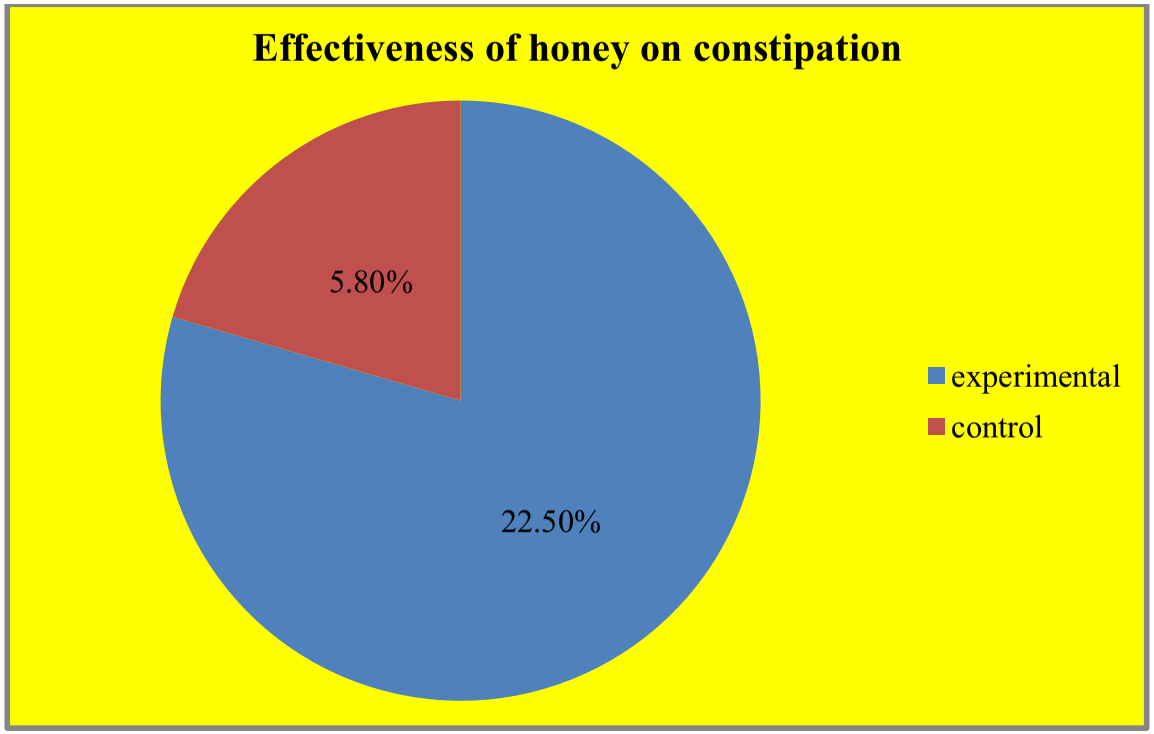

Figure: 4.21 Effectiveness of honey on constipation among antenatal mothers

SECTION – 5) Association between level of constipation reduction among selected variables.

Table 4.14: Association between demographic variables in experimental group

Demographic variables		Constipation reduction score				Total	Chi square test
		Below average(≤7.20)		Above average(>7.20)			
		frequency	in %	frequency	in %		
Age in years	20 -25 years	3	21.4%	11	78.6%	14	**$\chi 2=8.67$ p=0.01** DF=2**
	26 -30 years	10	76.9%	3	23.1%	13	
	31 -35 years	2	66.7%	1	33.3%	3	
Educational status	No formal education	3	100.0%	0	0.0%	3	**$\chi 2=8.73$p=0.05* DF=3**
	Primary education	4	66.7%	2	33.3%	6	
	Secondary education	7	50.0%	7	50.0%	14	
	Graduate & post graduate	1	14.2%	6	85.8%	7	
Occupation	Home maker	12	46.2%	14	53.8%	26	$\chi 2=2.15$ p=0.34 DF=2
	Self employed	2	100.0%	0	0.0%	2	
	Private employee	1	50.0%	1	50.0%	2	
Monthly income	< Rs.5000	4	40.0%	6	60.0%	10	$\chi 2=0.68$ p=0.71 DF=2
	Rs.5001 -10000	8	57.1%	6	42.9%	14	
	> Rs.10,000	3	50.0%	3	50.0%	6	
Religion	Hindu	13	50.0%	13	50.0%	26	$\chi 2=4.00$ p=0.13 DF=2
	Muslim	2	100.0%	0	0.0%	2	
	Christian	0	0.0%	2	100.0%	2	
Residence	Rural	6	54.5%	5	45.5%	11	$\chi 2=2.69$ p=0.26 DF=2
	Sub urban	6	66.7%	3	33.3%	9	
	Urban	3	30.0%	7	70.0%	10	
Type of family	Nuclear family	13	65.0%	7	35.0%	20	**$\chi 2=5.40$ p=0.02* DF=1**
	Joint family	2	20.0%	8	80.0%	10	

Younger age mothers (20-25) years (**$\chi 2=8.67$ p=0.01**), more educated (**$\chi 2=8.73$p=0.05)** and joint family mothers (**$\chi 2=5.40$ p=0.02)** were benefitted more than others. Statistical significance was calculated using chi square test.

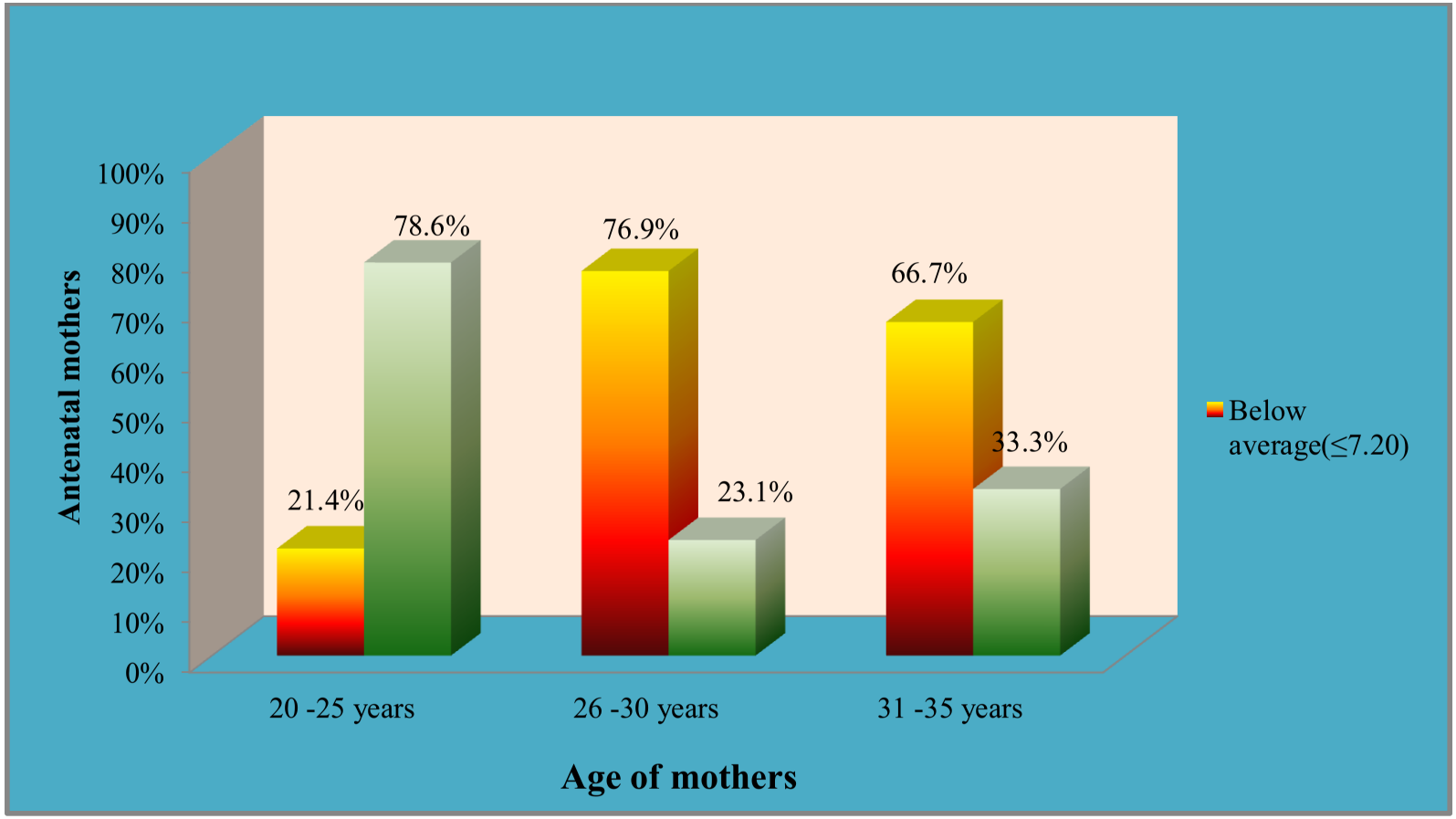

Figure 4.22: Association between level of constipation reduction and mothers' age

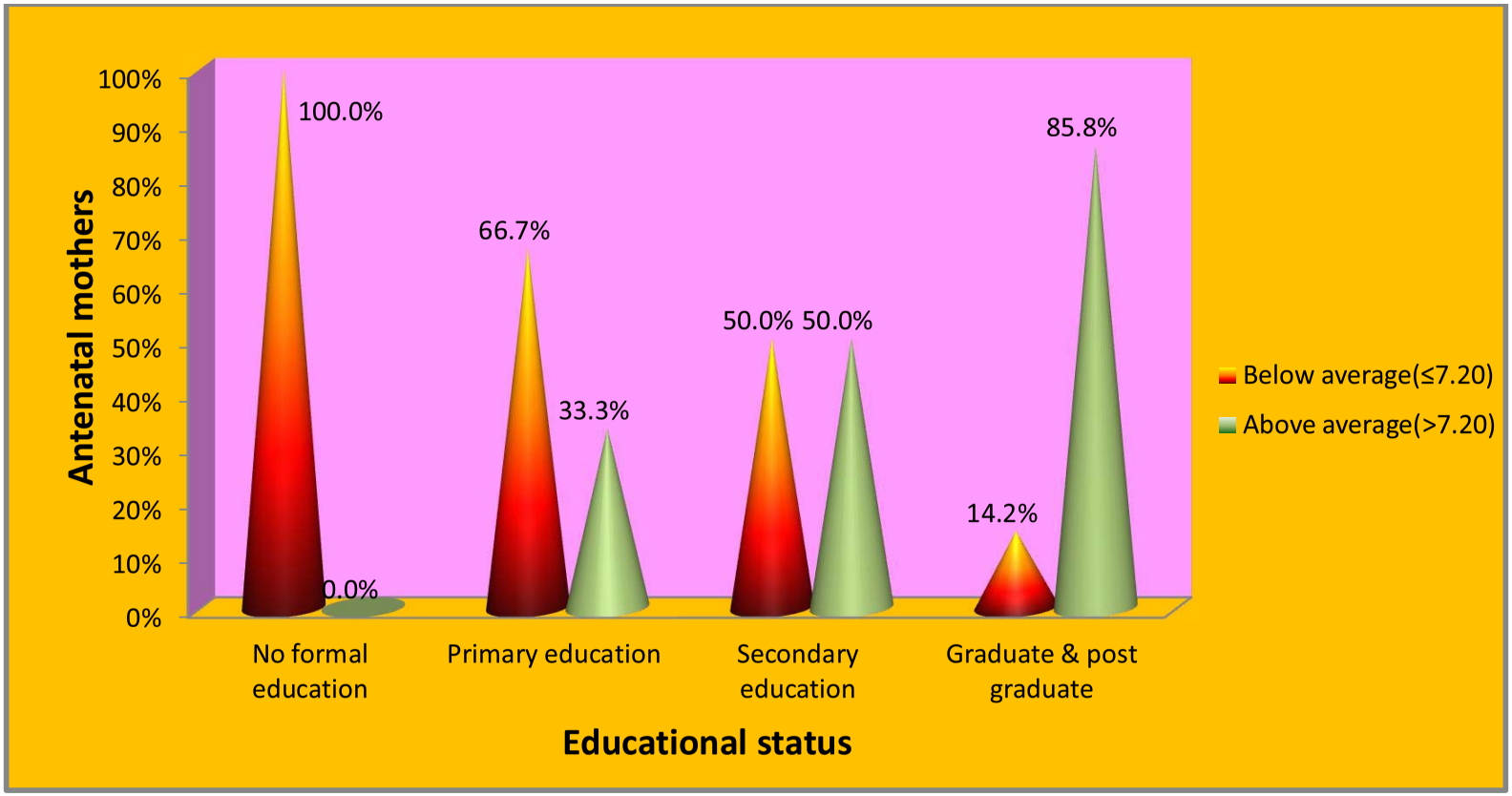

Figure 4.23: Association between level of constipation reduction and educational status

Table 4.15: Association between level of constipation reduction in selected obstetric variables among antenatal mothers in experimental group

Obstetrical variables		Constipation reduction score					
		Below average(≤7.20)		Above average(>7.20)			
		frequency	in %	frequency	in %	Total	Chi square test
Gravida	Primi	7	53.8%	6	46.2%	13	$\chi 2$=0.13 p=0.71 DF=2
	Multi	8	47.1%	9	52.9%	17	
Gestational age	27-31 weeks	3	42.8%	4	57.2%	7	$\chi 2$=2.43 p=0.30 DF=2
	32-36 weeks	7	70.0%	3	30.0%	10	
	37-40 weeks	5	38.4%	9	61.6%	13	
Consumption of iron tablets during pregnancy	Regular	12	44.4%	15	55.6%	27	$\chi 2$=3.33 p=0.07 DF=2 not significant
	Irregular	3	100.0%			3	

In experimental group none of the obstetric variables gravida, gestational age, consumption of iron tablets during pregnancy was significant. Statistical significance was calculated using chi square test.

Table 4.16: Association between level of constipation reduction in selected personal variables among antenatal mothers in experimental group

Personal variables		Constipation reduction score				Total	Chi square test
		Below average(≤7.20)		Above average(>7.20)			
		frequency	in %	frequency	in %		
Bowel habits	Once in a day/two	6	33.3%	12	66.7%	18	**$\chi 2=6.60$ p=0.05* DF=2**
	Thrice a week	7	70.0%	3	30.0%	10	
	Once / twice a week	2	100.0%	0	0.0%	2	
Fluid intake	>1500ml	3	75.0%	1	25.0%	4	$\chi 2=1.61$ p=0.44 DF=2
	<2000ml	4	57.1%	3	42.9%	7	
	>2000ml	8	42.1%	11	57.9%	19	
Dietary pattern	Vegetarian	1	50.0%	1	50.0%	2	$\chi 2=1.16$ p=0.56 DF=2
	Non Vegetarian	1	25.0%	3	75.0%	4	
	Mixed	13	54.2%	11	45.8%	24	
Daily activities	Regular walking	2	22.2%	7	77.8%	9	**$\chi 2=6.71$ C DF=2**
	Once in a while	2	33.3%	4	66.7%	6	
	Not at all	11	73.3%	4	26.7%	15	
Knowledge of health benefits of honey	Yes	8	44.4%	10	55.6%	18	$\chi 2=0.55$ p=0.45 DF=2
	No	7	58.3%	5	41.7%	12	
Relief measures	Home remedies	8	42.1%	11	57.9%	19	$\chi 2=1.47$ p=0.48 DF=2
	Medical help	1	50.0%	1	50.0%	2	
	None	6	66.7%	3	33.3%	9	

Among personal variables, **once in a day/ two bowel habits (p=0.05), regular walking mothers (p=0.05)** are benefitted more than others. Statistical significance was calculated using chi square test.

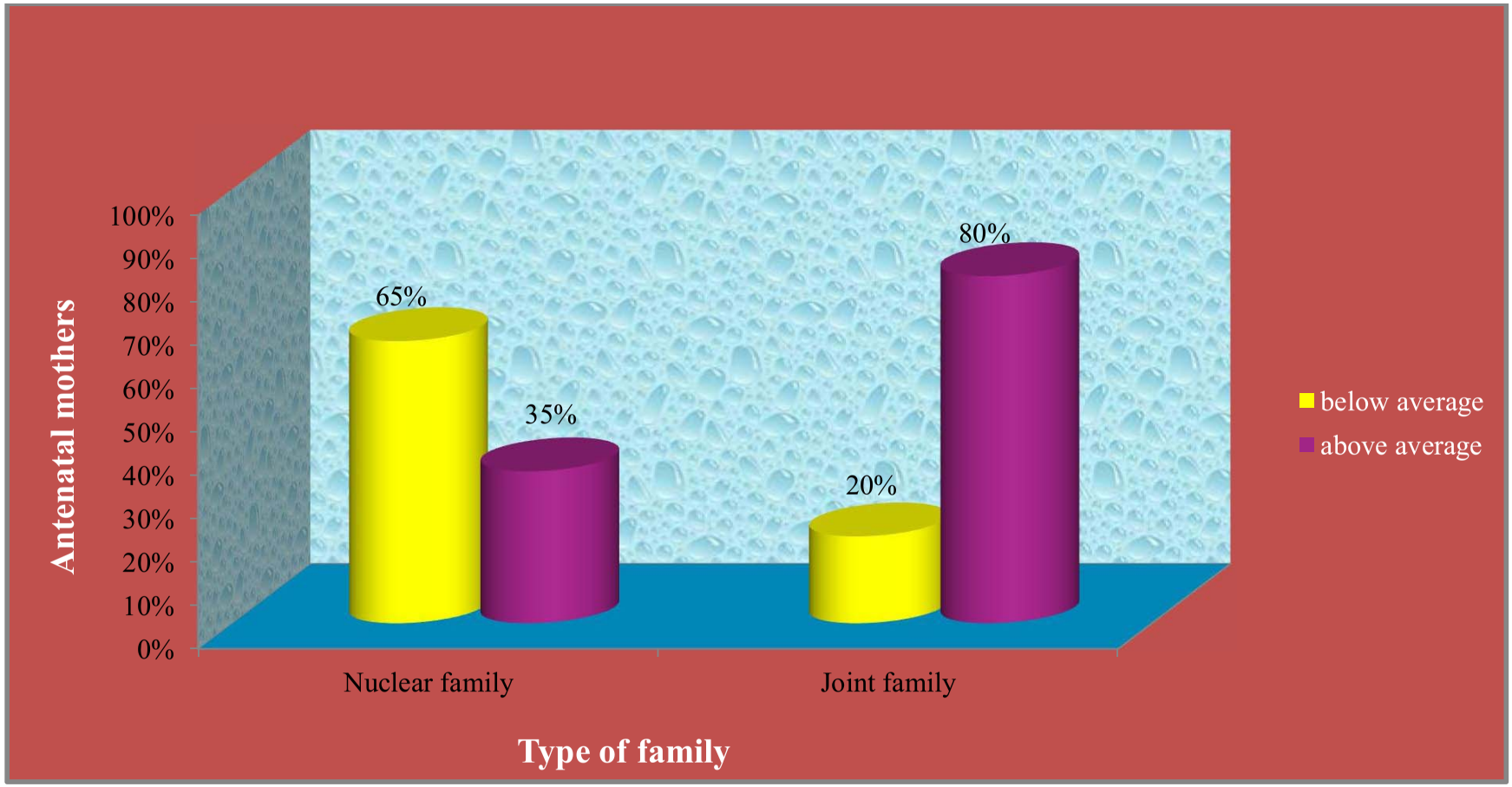

Figure 4.24: Association between level of constipation reduction and type of family

Table 4.17: Association between level of constipation reduction among antenatal mothers in demographic variables in control group

Demographic variables		Constipation reduction score					
		Below average(≤1.87)		Above average(>1.87)			
		frequency	in %	frequency	in %	Total	Chi square test
Age in years	20 -25 years	3	33.3	6	66.7	9	$\chi 2=1.45$
	26 -30 years	9	56.3	7	43.7	16	p=0.48
	31 -35 years	3	60.0	2	40.0	5	DF=2
Educational status	No formal education	2	40.0	3	60.0	5	
	Primary education	6	60.0	4	40.0	10	$\chi 2=0.71$
	Secondary education	4	44.4	5	55.6	9	p=0.87
	Graduate & post graduate	3	50.0	3	50.0	6	DF=3
Occupation	Home maker	13	54.2	11	45.8	24	$\chi 2=2.16$
	Self employed	0	0.0	2	100.0	2	p=0.34
	Private employee	2	50.0	2	50.0	4	DF=2
Monthly income	< Rs.5000	9	60.0	6	40.0	15	$\chi 2=1.68$
	Rs.5001 -10000	5	45.5	6	54.5	11	p=0.43
	>Rs.10,000	1	25.0	3	75.0	4	DF=2
Religion	Hindu	10	47.6	11	52.4	21	$\chi 2=0.24$
	Muslim	3	60.0	2	40.0	5	p=0.88
	Christian	2	50.0	2	50.0	4	DF=2
Residence	Rural	6	46.2	7	53.8	13	$\chi 2=0.27$
	Sub urban	6	50.0	6	50.0	12	p=0.87
	Urban	3	60.0	2	40.0	5	DF=2
Type of family	Nuclear family	7	46.7	8	53.3	15	$\chi 2=0.13$
	Joint family	8	53.3	7	46.7	15	p=0.71 DF=1

In control group none of the demographic variables were significant. Statistical significance was calculated using chi square test.

Table 4.18: Association between level of constipation reduction among antenatal mothers in obstetric variables in control group

Obstetrical variables		Constipation reduction score				Total	Chi square test
		Below average(≤1.87)		Above average(>1.87)			
		frequency	%	frequency	%		
Gravida	Primi	8	44.4	10	55.6	18	$\chi 2=0.55$ p=0.45 DF=2
	Multi	7	58.3	5	41.7	12	
Gestational age	27-31 weeks	6	66.7	3	33.3	9	$\chi 2=2.44$ p=0.29 DF=2
	32-36 weeks	4	33.3	8	66.7	12	
	37-40 weeks	5	55.6	4	44.4	9	
Consumption of iron tablets during pregnancy	Regular	13	48.1	14	51.9	27	$\chi 2=0.37$ p=0.54 DF=2
	Irregular	2	66.7	1	33.3	3	

In control group none of the obstetric variables were significant. Statistical significance was calculated using chi square test.

Table 4.19: Association between level of constipation reduction among antenatal mothers in personal variables in control group

Personal variables		Constipation reduction score				Total	Chi square test
		Below average(≤1.87)		Above average(>1.87)			
		frequency	%	frequency	%		
Bowel habits	Once in a day/two	8	61.5	5	38.5	13	$\chi2$=3.69
	Thrice a week	7	50.0	7	50.0	14	p=0.15
	Once / twice a week	0	0.0	3	100.0	3	DF=2
Fluid intake	>1500ml	3	42.9	4	57.1	7	$\chi2$=2.29
	<2000ml	8	66.7	4	33.3	12	p=0.31
	>2000ml	4	36.4	7	63.6	11	DF=2
Dietary pattern	Vegetarian	3	60.0	2	40.0	5	$\chi2$=0.34
	Non Vegetarian	3	42.9	4	57.1	7	p=0.84
	Mixed	9	50.0	9	50.0	18	DF=2
Daily activities	Regular walking	2	33.3	4	66.7	6	$\chi2$=0.84
	Once in a while	5	55.6	4	44.4	9	p=0.64
	Not at all	8	53.3%	7	46.7	15	DF=2
Knowledge of health benefits of honey	Yes	11	55.0	9	45.0	20	$\chi2$=0.60
	No	4	40.0	6	60.0	10	p=0.43 DF=2
Relief measures	Home remedies	7	41.2	10	58.8	17	$\chi2$=1.64
	Medical help	3	75.0	1	25.0	4	p=0.44
	None	5	55.6	4	44.4	9	DF=2

In control group none of the personal variables were significant. Statistical significance was calculated using chi square test.

CHAPTER - V

SUMMARY OF THE RESULTS

This chapter deals with the summary of the results of the data analyzed based on the objectives of the study. The main aim of the study is to determine the effectiveness of honey on constipation among antenatal mothers in third trimester admitted in Institute of Obstetrics and Gynaecology and Govt hospital for women and children, Chennai."

The major findings of the study among antenatal mothers with constipation

Based on demographic variables

- Among experimental group majority of the mothers came under the age group of 20-25 years (46.7%) and in control group majority of them came under the age group of 26-30 years (53.3%).
- Considering the educational status in experimental group majority, 14 (46.7%) belonged to secondary education and in control group, 10(33.3%) belonged to primary education.
- Regarding occupational status both in experimental group 26(86.6%) and in control group, 24(80%) belonged to homemaker.
- Regarding income of the experimental group 14(46.7%) under the Rs.5000-10000/- per month and in control group 15 (50%) under the Rs.>5000/- per month.
- Regarding religion majority of the mothers in experimental group 26(86.7%) and control group 21(70%) were Hindus.
- Majority of the mothers in both experimental 11(36.7%) and control group, 13(43.3%) were rural population.

- ❖ Considering the type of family in experimental group, 20 (66.7%) belonged to joint family and in control group both nuclear families and joint families (50%) participated in this study.

Based on obstetric and personal variables

- ❖ Among experimental group, regarding the gravida of the mothers majority 17 (56.7%) were multi gravida and in control group majority 18(60.0%) were primi gravida.
- ❖ Regarding gestational age among experimental group, majority 13(43.3%) were between 37-40 weeks and in control group majority 12(40%) were between 32-36 weeks.
- ❖ Among experimental group and control group, 27(90%) of mothers took iron tablets regularly during pregnancy.
- ❖ In experimental group, regarding bowel habits of the mothers, majority 18(60.0%) had bowel habits of once in a day/two and in control group, 14(46.7%) of mothers had bowel habits of thrice in a week.
- ❖ Considering the fluid intake in experimental group 19(63.3%) were >2000ml and among control group 15(50%) were >2000ml per day.
- ❖ Regarding dietary pattern among experimental group majority 24(80%) of the mothers and in control group, 18(60%) were mixed diet.
- ❖ Regarding the daily activities in both experimental and control group (15) 50% of mothers not at all doing any exercises.
- ❖ Among experimental group majority of the mother (18) 60% and in control group 20(66.7%) had knowledge about health benefits of honey.
- ❖ Regarding relieving measures for constipation both experimental group (19) 63.3% and control group (17) 56.75% took home remedies.

Level of constipation

- Considering pretest among experimental group majority of mothers 90% had minimal to moderate level of constipation, 10% had none to minimal constipation.
- In pre-test among control group, 40.0% of the antenatal mothers were having none to minimal score, 60.0% of them had minimal to moderate score.
- In post-test, among experimental group, 83.3% of antenatal mothers had none to minimal score, 16.7% of them had minimal to moderate score.
- In post-test among control group, 13.3% of the antenatal mothers had none to minimal score, 86.7% of them had minimal to moderate score.
- In pretest among experimental group, constipation score was 34.6% and in post-test 12.1%.
- In pretest among control group, constipation score 35.8 % and in post-test 30.3%.

Comparison of pre-test and post-test among experimental and control group

- Considering experimental group, in pre-test mean constipation score 11.07 and in post-test score was 3.87. Difference is 7.20 score. Difference between pre-test and post-test score was analyzed using Student paired t-test. The difference between pre-test and post-test, t=14.79 p value=0.001 and it is **statistically significant**.
- Considering control group, pre-test mean constipation score was 11.47 and post-test score was 9.60 score and difference was 1.87 score. The difference between pre-test and post-test score is small and it is not statistically significant.

Effectiveness of honey on constipation

- In experimental group, mean difference between pre-test and post-test constipation score was 7.20 and percentage difference of constipation 22.5% (95% CI 20.5%–24.5%). This shows the effectiveness of honey in relieving constipation.
- Among control group mothers, mean difference between pre-test and post-test constipation score was 1.87 and percentage difference of constipation 5.8% (95% CI 1.1% –10.5%). **H_1:** There is significant difference in level of constipation among experimental and control group. Hence **H_1** is accepted.

Association with selected demographic variables

- Younger age (20-25) years p=0.01, more educated p=0.05 and joint family mothers p=0.02 are benefitted more than others. Statistical significance was calculated using chi square test.
- Once in a day bowel habits, p=0.05 regular walking mothers p=0.04 benefitted more than others. Statistical significance was calculated using chi square test.
- There was significant association between level of constipation reduction with selected demographic and personal variables among the antenatal mothers in third trimester.
- **H_2:** There is significant association between the level of constipation and the selected demographic variables. Hence **H_2** is accepted.

CHAPTER – VI
DISCUSSION

This chapter deals with the discussion based on the objectives of the study. The main aim of the study is to determine the effectiveness of honey on constipation among antenatal mothers in third trimester admitted in Institute of Obstetrics and Gynaecology and Govt hospital for women and children, Chennai."

Findings based on objectives

- **The first objective of the study was to assess the level of constipation among antenatal mothers in third trimester in both experimental and control group.**

In this study, in pre-test among experimental group majority of the mothers (90%) had minimal to moderate constipation, 10% had none to minimal constipation. In pre-test, total constipation score was 34.6%.

In this study, in pre-test among control group mothers (13.3%) had none to minimal, majority of the mothers (86.7%) had minimal to moderate score .In control group total constipation score was 35.8%.

The findings consistent with the study findings of **Derbyshire et al. (2014)** conducted two prospective cohort studies in Alaska were found with moderate study quality. The study estimates that the prevalence of constipation within the sample population was greatest in the first and second trimesters, 35% (95% CI 23-47%) and 39% (95% CI 26-52%) respectively and in the third trimester, 21% (95% CI 10-32%). The mean prevalence rate of constipation during pregnancy of this study was 32%.

Magan Trottier, MSc, Aida Erebara, MD, and Pina Bozzo[8] **et al. (2001)** conducted a study on treating constipation in pregnancy**.** It has been estimated that

approximately 11% to 38% of pregnant women experience constipation, which is generally described as infrequent bowel movements or difficult evacuation.

***Vazquez J*[19]. (2010)** conducted a study on constipation, haemorrhoids, and heartburn in pregnancy in Los Angeles. They reported constipation in pregnant women varies between 11% and 38%.

- **The second objective of the study was to compare the level of constipation among antenatal mothers in third trimester in pre-test and post-test among experimental and control group.**

In experimental group, among pre-test women, the mean constipation score was 11.07 and in post-test, they had 3.87 score and difference was 7.20 score. The difference between pre-test and post-test score was large and it is **statistically significant**. Difference between pre-test and post-test score was analyzed using student paired t-test. t=14.79 p=0.001.

In control group, among pre-test women, the mean constipation score was 11.47 and in post-test, they had 9.60 score. The difference was 1.87 score. The difference between pre-test and post-test score was small. Difference between pre-test and post-test score was analyzed using student paired t-test. It is not statistically significant.

The findings consistent with the study findings of ***Huang Ali Jing*[38] *et a*l. (2012),** conducted an experimental study to determine the impact of (honey 10 ml) 2times a day for constipation. The incidence of constipation and degree of constipation of two groups were compared. The incidence of constipation in the experimental group was 25%, in control group was 61.29%. The study concluded that administration of honey is effective in management of constipation.

- **The third objective was to evaluate the effectiveness of honey on constipation among antenatal mothers in third trimester in experimental group.**

❖ **In this study**, in experimental group, mean difference between pre-test and post-test constipation score was 7.20 and percentage difference of constipation 22.5% (95% CI 20.5%–24.5%). This shows the effectiveness of honey in relieving constipation.

❖ **In this study**, among control group mothers, mean difference between pre-test and post-test constipation score was 1.87 and percentage difference of constipation 5.8% (95% CI 1.1% –10.5%). **H_1:** There is significant difference in level of constipation among experimental and control group. Hence **H_1** is accepted.

The findings nearly consistent with the study findings of ***Erejuva[39] et al.*** **(2012)** conducted a quasi experimental study to assess the efficacy of honey with lemon juice in the treatment of constipation in China. The incidence of constipation was lower in the intervention group than that in the control group ($p<0.05$). The study concluded that honey was effective in treating constipation.

- **The fourth objective was to find the association of level of constipation with selected demographic variables among the antenatal mothers in third trimester.**

In this study, there was significant association between younger age (20-25) years, $\chi 2$ p value=0.0, more educated (graduates) $\chi 2=8.73$. p=0.05 and joint family mothers, $\chi 2=5.40$.p value=0.02 were benefitted more than others. Statistical significance was calculated using chi square test. There was significant association between levels of constipation reduction score with selected demographic variables among the antenatal mothers in third trimester.

There was significant association between level of constipation reduction with selected personal variables among the antenatal mothers in third trimester. Once in a day/ two bowel habits, $\chi 2=6.60$ p value=0.05, regular walking mothers $\chi 2=6.71$,

p value=0.04 were benefitted more than others. Statistical significance was calculated using chi square test.

The findings consistent with the study findings ***Derbyshire [32] et al and Bradley [14] et al. (2015***) this systematic review aimed to identify the diagnostic criteria of constipation during pregnancy, its prevalence during the three trimesters, as well as the effects and efficacy of different interventions for its prevention or treatment. Regarding constipation treatment, during pregnancy abundant fluid intake and physical activity improve constipation. Light physical activity appears to promote regular bowel movements during pregnancy; therefore a sedentary lifestyle may likewise cause or exacerbate constipation. They found association between physical activity and constipation during pregnancy.

CHAPTER VII

CONCLUSION AND RECOMMENDATION

Constipation during pregnancy is a common problem. Nowadays only few effective interventions are published in preventing or treating constipation during pregnancy. The studies investigating the potential role of honey in the management of constipation are really effective. It is worth mentioning that honey administration improves health status.

7.1 Implications

The investigator had drawn the following implications from the study which is of vital concern in the field of nursing practice, nursing administration, nursing education and nursing research.

I) Nursing practice

1. Evidence based nursing care practices are in greater need to improve the quality of patient care. High quality and cost effective nursing care is only possible through research in the area of nursing profession.
2. Nurse researchers regularly make modest attempts to generate or refine the nursing interventions.
3. Nurses have the opportunity to lead the multidisciplinary team in understanding the client's problem. Health care provider may re-evaluate the traditional practices.

II) Nursing administration

1. With technological advancement and ever growing challenges of health care needs, the administrators have the responsibility to provide nurses with substantive information through educational opportunities.
2. Nursing administrators or leaders should take interest in formulating principles and adapting the various modalities of non pharmacological management.
3. Nursing administrators can derive policies on complementary and alternative therapies.

4. Nurse administrators may consider allocating resources for conducting various staff development programs and provide opportunity for the nurses to attend national and international conferences.

III) Nursing education

1. The results of the study emphasis the learners to utilize the knowledge, as a nurse educator we must strengthen the concept of non-pharmacological methods for treating health problems.
2. Complementary and Alternative medicine has been included in the curriculum of nursing education. Integration of theory into practice is vital need and it is important in nursing education.
3. Nursing students should be exposed to these areas and to learn regarding these types of interventions.

IV) Nursing research

1. The scope of nursing research is to strengthen the body of knowledge in nursing practices, education, and administration. The finding can be a baseline for further studies to improve the body of knowledge in nursing.
2. The nurse researcher should motivate the clinical nurse to do further research studies on effectiveness of honey in various gastro intestinal problems.
3. The nurse researcher should encourage clinical nurse to apply the research findings in their daily nursing care activities and can bring out new innovative procedures to prevent constipation during pregnancy and after delivery.
4. The nurse researchers may conduct periodic review on research findings and disseminate the finding through conferences, seminars and publications in professional, national and international journals and also in the World Wide Web.

7.2 Limitations

- The study was done with small samples.
- The study was done in limited study setting

7.3 Recommendation for further studies

- The study can be replicated on larger samples in multi stage for better generalization
- The similar study can be conducted in different settings, postnatal wards and post operative wards.
- A study can be conducted to evaluate the cost effectiveness of the honey in terms of laxatives used.
- To increase the efficacy of existing methods, combinational methods may be explored.
- Novel and innovative therapies of complementary and alternative medicine can be recommended in future studies for treating constipation.

Conclusion

Constipation during pregnancy is a common problem. Nowadays only few effective interventions are published in preventing or treating constipation during pregnancy. It is worth mentioning that honey consumption improves health status. Honey therapy for constipation is easy to implement, safe for pregnant women, non-invasive, and low-cost. There is marked reduction of level of constipation among pregnant women.

The study reveals that administration of honey for three days, majority of the women relieved from constipation. It may be recommended for home therapy, which is easily available and good for health in all ages. The excavated results supported the incorporation of complementary medicine to relieve constipation among antenatal mothers. Complementary and alternative medicine is expected to play a more important role in the future.

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INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI-3

EC Reg No.ECR/270/Inst./TN/2013
Telephone No. 044 25305301
Fax : 044 25363970

CERTIFICATE OF APPROVAL

To
Mrs. KALIYAPERUMAL ANANTHI
M.Sc., (Nursing)
College of Nursing
Madras Medical College,
Chennai – 600 003.

Dear Mrs. KALIYAPERUMAL ANANTHI ,

The Institutional Ethics Committee has considered your request and approved your study titled, **" A STUDY TO ASSESS THE EFFECTIVENESS OF HONEY ON CONSTIPATION AMONG ANTENATAL MOTHERS IN THIRD TRIMESTER *ADMITTED IN GOVT INSTITUTE OF OBSTETRICS AND GYNAECOLOGY AND* HOSPITAL FOR WOMEN AND CHILDREN, EGMORE, CHENNAI-08." No.04102014.**

The following members of Ethics Committee were present in the meeting held on 21.10.2014 conducted at Madras Medical College, Chennai-3.

1. Dr.C.Rajendran, M.D., : Chairperson
2. Dr.R.Vimala, M.D., Dean, MMC, Ch-3 : Deputy Chairperson
3. Prof.B.Kalaiselvi, M.D., Vice-Principal, MMC, Ch-3 : Member Secretary
4. Prof.R.Nandhini, M.D., Inst.of Pharmacology, MMC : Member
5. Prof.K.Ramadevi, Director i/c, Inst.of Biochemistry, MMC : Member
6. Prof.Saraswathy, M.D., Director, Pathology, MMC, Ch-3 : Member
7. Prof.S.G.Sivachidambaram, M.D., Director i/c, Inst.of Internal Medicine, MMC : Member
8. Dr.Balakrishnan, M.S., Director, Inst.of Surgery, MMC : Member
9. Thiru S.Rameshkumar, Administrative Officer : Lay Person
10. Thiru S.Govindasamy, B.A., B.L., : Lawyer
11. Tmt.Arnold Saulina, M.A., MSW., : Social Scientist

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.

Member Secretary, Ethics Committee

MEMBER SECRETARY
INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE
CHENNAI-600 003

CERTIFICATE OF CONTENT VALIDITY

This is to certify that the tool constructed by Ms. **Kaliyaperumal Ananthi**, Msc Nursing II year, College of Nursing, Madras Medical College, which is used in her study title **"A STUDY TO ASSESS THE EFFECTIVENESS OF HONEY ON CONSTIPATION AMONG ANTENATAL MOTHERS IN THIRD TRIMESTER ADMITTED AT INSTITUTE OF OBSTETRICS AND GYNECOLOGY AND GOVERNMENT HOSPITAL FOR WOMEN AND CHILDREN, EGMORE, CHENNAI-8"** has been validated by the undersigned. The suggestions and modifications given by me will be incorporated by the investigator in concern with their respective guide. Then she can proceed to do the research.

SIGNATURE WITH SEAL

MADHA COLLEGE OF NURSING
16 JUL 2015
CHENNAI - 600 069

Name : KANAGAVALLI.P

Designation : Reader

College : Madha College of Nursing

Date : 16/7/15

Place : Chennai

CERTIFICATE OF CONTENT VALIDITY

This is to certify that the tool constructed by Ms. **Kaliyaperumal Ananthi**, Msc Nursing II year, College of Nursing, Madras Medical College, which is used in her study title "**A STUDY TO ASSESS THE EFFECTIVENESS OF HONEY ON CONSTIPATION AMONG ANTENATAL MOTHERS IN THIRD TRIMESTER ADMITTED AT INSTITUTE OF OBSTETRICS AND GYNECOLOGY AND GOVERNMENT HOSPITAL FOR WOMEN AND CHILDREN, EGMORE, CHENNAI-8"** has been validated by the undersigned. The suggestions and modifications given by me will be incorporated by the investigator in concern with their respective guide. Then she can proceed to do the research.

SIGNATURE WITH SEAL

Assistant Surgeon
I.O.G. & Government Hospital
For Women and Children
Egmore, Chennai-8

Name : Dr. K. Priyadarshini M.D. D.G.O.

Designation : Asst Professor

College : Institute of obstetrics & Gynaecology

Date : 17.07.2015

Place : chennai-08

Ref.No.4673/P&D/2015

IOG and Government Hospital for Women and Children, Egmore, Chennai 8, Dated 1.7.2015

Sub : Training - M.Sc., (N) II year., Obstetrics and Gynaecological Nursing – Clinical Practice, Dissertation, practical examination and Lecture training in the IOG and Government Hospital for Women and Children, Egmore, Chennai 8 for the period from 6.7.2015 to 5.8.2015-Permission - orders issued

Ref : Letter dated 24.6.2015 of the Head of Department, O&G Nursing, College of Nursing, Madras Medical College, Chennai 3.

+++++

As per the letter reference cited, the following M.Sc (N) II years students of Madras Medical College, Chennai 3 are permitted to undergo the clinical experience, lecture classes, University practical examination and also to carryout dissertation work in IOG and Government Hospital for Women and Children, Egmore, Chennai 8 for the period from 6.7.2015 to 5.8.2015 under the guidance of the Assistant Professor of O&G mentioned against their names.

Sl.No	Name of the Students	Name of the Assistant Professor of O&G of this Hospital
1	Mrs. A.Bhuvaneswari	Dr. M.Geetha
2.	Mrs.A.Josephine Carmel Rani	Dr.Nalina
3.	Mrs. Kalavathy Padmanaban	Dr.P.Priyadarshini
4.	Mrs.Kaliyaperumal Ananthi	Dr.K.priyadarshini,
5.	Mrs.Naidu Merita Mohanraj	Dr.M. Thangamani
6..	Mrs. Palaniammal	Dr.Sumathy
7.	Mrs. Princy Fernando	Dr.K. Abiramavalli
8.	Mrs..S.Jayashree	Dr.D. Shanthi Sivakumar

Director and Superintendent

Director and Superintendent
Institute of Obstetrics and Gynaecology and Govt. Hospital for Women and Children, EGMORE, MADRAS-8.

To

The Individuals concerned

Copy to

Dr.M Geetha, Assistant Professor of O&G , IOG and Government Hospital for Women and Children, Egmore, Chennai 8

செவிலிய கல்லூரி, சென்னை மருத்துவ கல்லூரி
சமுதாய நேர்காணல் படிவம்

பகுதி -அ
சுய விபர கேள்வி தாள்

மாதிரி எண்:

1. வயது

அ) 20-25 ( )

ஆ) 26-30 ( )

இ) 31-35 ( )

ஈ) 36-40 ( )

2. கல்வித்தகுதி

அ) படிக்காதவர் ( )

ஆ) ஆரம்பக்கல்வி ( )

இ) மேல் நிலைக்கல்வி ( )

ஈ) பட்டபடிப்பு & பட்டமேற்படிப்பு ( )

3. தொழில் விபரம்

அ) இல்லதரசி ( )
ஆ) தனியார் வேலை ( )
இ) சுய தொழில் ( )
ஈ) அரசாங்க வேலை ( )

4. மாத வருமானம் (ரூபாயில்)

அ) > 5000 ( )

ஆ) 5001 -10000 ( )

இ) >10,000 ( )

5.மதம்

அ) இந்து ( )

ஆ) முஸ்லிம் ( )

இ) கிறிஸ்துவர் ( )

ஈ) மற்றவர் ( )

6.இருப்பிடம்

அ) கிராமப்பகுதி ( )

ஆ)புறநகர் பகுதி ( )

இ) நகரப்பகுதி ( )

7.குடும்ப வாழ்வு முறை

அ)தனி குடும்பம் ( )
ஆ)கூட்டு குடும்பம் ( )
இ)விரிவான குடும்பம் ( )

பகுதி -ஆ
மகப்பேறு விபரங்கள்

1.எத்தனையாவது குழந்தை

அ) முதல் ( )
ஆ) இரண்டாவது ( )
இ) மூன்றாவது ( )

2. கர்ப்ப கால விபரம்

அ) 27-31 வாரங்கள் ( )
ஆ) 32-36வாரங்கள் ( )
இ) 37-40 வாரங்கள் ( )

3. கர்ப்ப காலத்தில் இரும்புச்சத்து மாத்திரை எடுத்துகொள்கிறீர்களா? ஆம் எனில்,

அ) ஒழுங்காக ( )

ஆ)ஒழுங்கற்று ( )

தன்செயல் விபரங்கள்

பகுதி - இ

1. மலம் கழிக்கும் பழக்கம்

அ) 1 நாளைக்கு 1 முறை (அ) 2 முறை ( )
ஆ) 1 வாரத்திற்கு 3 முறை ( )
இ) 1 வாரத்திற்கு 1 (அ) 2 முறை ( )

2. ஒரு நாளைக்கு உட்கொள்ளும் திரவ அளவு

அ) 1500 மில்லி-க்குள் ( )
ஆ) 2000 மில்லி-க்குள் ( )
இ) 2000 மில்லி-க்கு மேல் ( )

3.உணவுப்பழக்கம்

அ) சைவம் ( )
ஆ)அசைவம் ( )
இ) கலந்தது ( )

4.நடை பயிற்சி

அ) தினமும் ( )
ஆ)எப்பொழுதாவது ( )
இ)கிடையாது ( )

5. தேனின் மருத்துவ பயன்கள் பற்றி அறிவீர்களா?

அ)ஆம் ( )
ஆ)இல்லை ( )

6.மலச்சிக்கலை போக்க மேற்கண்ட சிகிச்சை முறை

அ) கை மருத்துவம் ( )
ஆ) மருத்துவ உதவி ( )
இ) எதுவும் இல்லை

பகுதி - ஈ

கர்ப்ப காலத்தில் ஏற்ப்படும் மலச்சிக்கலை மதிப்பிடுவதற்கான அளவு கோல்

வயிறு உப்புசம்/வாயு சேர்ந்திருத்தல்	சிறிதுமில்லை	மெதுவான	மிதமான	கடுமையான	மிகவும் கடுமையான
ஆசன வாய் வழியாக காற்று பிரிதலில் உள்ள மாற்றம்	சிறிதுமில்லை	மெதுவான	மிதமான	கடுமையான	மிகவும் கடுமையான
குறைவான மலக்குடல் அசைவுகள்	சிறிதுமில்லை	மெதுவான	மிதமான	கடுமையான	மிகவும் கடுமையான
திரவ நிலையில் மலம் கசிதல்	சிறிதுமில்லை	மெதுவான	மிதமான	கடுமையான	மிகவும் கடுமையான
ஆசன வாய் நிறைவு/ அழுத்தம்	சிறிதுமில்லை	மெதுவான	மிதமான	கடுமையான	மிகவும் கடுமையான
ஆசனவாயில் வலியுன் கூடிய மலக்குடல் அசைவுகள்	சிறிதுமில்லை	மெதுவான	மிதமான	கடுமையான	மிகவும் கடுமையான
குறைந்த அளவு மலம் கழித்தல்	சிறிதுமில்லை	மெதுவான	மிதமான	கடுமையான	மிகவும் கடுமையான
மலம் கழிக்க இயலாமை	சிறிதுமில்லை	மெதுவான	மிதமான	கடுமையான	மிகவும் கடுமையான

சிறிதுமில்லை=0; மெதுவான=1; மிதமான=2; கடுமையான=3; மிகவும் கடுமையான=4

Appendix

SECTION- A

DEMOGRAPHIC VARIABLES

Sample Number:

1. Age in years

a) 20-25 ( )
b) 26-30 ( )
c) 31-35 ( )
d) 36-40 ( )

2. Educational status

a) No formal education ( )
b) Primary education ( )
c) Secondary education ( )
d) Graduate & post graduate ( )

3. Occupation

a) Home maker ( )
b) Self employed ( )
c) Private employee ( )
d) Government employee ( )

4. Monthly income of the family (in Rupees)

a) >5000 ( )
b) 5001 -10000 ( )
c) >10,000 ( )

5. Religion

d) Hindu ( )
e) Muslim ( )
f) Christian ( )
g) Others ( )

6. Residence

a) Rural ( )
b) Sub-urban ( )
c) Urban ( )

7. Type of family

a) Nuclear family ( )
b) Joint family ( )
c) Extended family ( )

SECTION -B

OBSTETRICAL VARIABLES

1. Gravida
   a) Primi ( )
   b) Multi ( )
2. Gestational age
   a) 27-31 weeks ( )
   b) 32-36 weeks ( )
   c) 37-40weeks ( )
3. Consumption of iron tablets during pregnancy
   a) Regular ( )
   b) Irregular ( )

SECTION -C

PERSONAL VARIABLES

1. Bowel habits

   a) Once in a day/two ( )
   b) Thrice a week ( )
   c) Once / twice a week ( )

2. Fluid intake per day

   a) >1500ml ( )
   b) <2000ml ( )
   c) >2000ml ( )

3. Dietary pattern

a) Vegetarian ( )
b) Non Vegetarian ( )
c) Mixed ( )

4. Daily activities

a) Regular walking ( )
b) Once in a while ( )
c) Not at all ( )

5. Knowledge about health benefits of honey

Yes ( )
No ( )

6. Relieving measures

a) Home remedies ( )
b) Medical help ( )
c) None ( )

SECTION -D

The Constipation Assessment Scale for Pregnancy is an adaptation of the Constipation Assessment Scale of McMillan and Williams (Broussard, 1998), differing essentially in the use of a 5-point rather than a 3-point rating scale for each of the constipation characteristics. The change was apparently made in the interest of producing interval level data that would allow parametric statistical testing. Trait validity, internal consistency and test-retest scores are, not surprisingly, similar to those of the McMillan and Williams scale. Future studies designed to identify potential therapeutic interventions for constipation during pregnancy could use the CAS for pregnancy as a measurement instrument.

Table 5.2 The Constipation Assessment Scale for Pregnancy

Abdominal distension or bloating	None	Mild	Moderate	Severe	Very Severe
Change in amount of gas passed	None	Mild	Moderate	Severe	Very Severe
rectally	None	Mild	Moderate	Severe	Very Severe
Less frequent bowel movements	None	Mild	Moderate	Severe	Very Severe
Oozing liquid stool	None	Mild	Moderate	Severe	Very Severe
Rectal fullness or pressure	None	Mild	Moderate	Severe	Very Severe
Rectal pain with bowel movement	None	Mild	Moderate	Severe	Very Severe
Small volume of stool	None	Mild	Moderate	Severe	
Unable to pass stool					

(Broussard, 1998

Modified the score for pregnant women by using 5- point scale, scored 0-4, None-0, Mild-1, Moderate-2, Severe-3, Very Severe-4, providing total score range of 0-32

(0-8= None to Minimal; 9-17= Minimal to Moderate; >25 = Moderate to Severe)

ஆராய்ச்சி ஒப்புதல் படிவம்

ஆராய்ச்சி தலைப்பு : "மூன்றாம் பருவ கர்ப்ப காலத்தில் கர்ப்பிணி பெண்களுக்கு ஏற்படும் மலச்சிக்கலுக்கு தேன் கொடுத்து திறனாய்வு செய்தல்".

பெயர்: **:** **தேதி :**

வயது **:** **உள்நோயாளி எண்:**

ஆராய்ச்சி சேர்க்கை எண்:

இந்த ஆராய்ச்சியின் விவரங்களும் அதன் நோக்கங்களும் முழுமையாக எனக்கு விளக்கப்பட்டது

எனக்கு விளக்கப்பட்ட விஷயங்களை புரிந்து கொண்டு எனது சம்மதத்தைத் தெரிவிக்கிறேன்

இந்த ஆராய்ச்சியில் பிறரின் நிபந்தனையின்றி சொந்த விருப்பத்தின் பேரில் பங்கு பெறுகின்றேன் மற்றும் நான் இந்த ஆராய்ச்சியிலிருந்து எந்நேரமும் விலகிக்கொள்ளலாம் என்பதையும் அதனால் எவ்வித பாதிப்பும் ஏற்படாது என்பதையும் நான் புரிந்து கொண்டேன்.

இந்த ஆராய்ச்சியின் தகவல்களை வெளியிட சம்மதிக்கிறேன். அப்படி வெளியிடும் போது என் அடையளாம் வெளிவராது என்பதை அறிவேன்.

நான் என் சுயநினைவுடனும் மற்றும் முழுமனதுடனும் இந்த ஆய்வில் பங்கு பெற சம்மதிக்கிறேன்.

நான் இந்த ஆராய்ச்சிக்கு என்னுடைய முழு ஒப்புதலை அளிக்கிறேன்.

எனக்கு இந்த ஒப்புதல் கடிதத்தின் நகல் கொடுக்கப்பட்டது.

ஆராய்ச்சியாளர் கையொப்பம்: பங்கேற்பாளர் கையொப்பம்:

தேதி : தேதி :

ஆராய்ச்சி தகவல் தாள்

ஆராய்ச்சித் தலைப்பு : "மூன்றாம் பருவ கர்ப்ப காலத்தில் கர்ப்பிணி பெண்களுக்கு ஏற்படும் மலச்சிக்கலுக்கு தேன் கொடுத்து திறனாய்வு செய்தல்".

ஆய்வாளர் பெயர் : கலியபெருமாள் ஆனந்தி
பங்கேற்பாளர் பெயர் :
தேதி :
வயது :
ஆராய்ச்சிச் சேர்க்கை எண் :

நான் அரசு தாய் சேய் நல மருத்துவமனையில் கர்ப்பிணி பெண்கள் கவனிப்பு பகுதியில் உள் நோயாளிகளாக அனுமதிக்கபட்டுள்ள தாய்மார்களிடம் திறனாய்வு மேற்கொள்கிறேன்.

மூன்றாம் பருவ கர்ப்ப காலத்தில் உள்ள கர்ப்பிணி தாய்மார்களுக்கு தொடர்ந்து மூன்று நாட்கள் காலை மற்றும் மாலை வேலைகளில் 10 மி.லி. தேனை 100 மிலி வெதுவெதுப்பான நீரில் கலந்து பருக செய்யபோகிறேன்.

இந்த செயல்முறையின் மூலம் மூன்றாம் பருவ கர்ப்ப காலத்தில் ஏற்ப்படும் மலச்சிக்கலை போக்கும் வாய்ப்பு அதிகம் உள்ளது. இம்முறையைத் தாய்மார்கள் நன்றாக பயன்படுத்திக் கொள்ளலாம்.

தாய்மார்கள் தங்கள் சொந்த விருப்பத்தின் பேரில் ஆராய்ச்சியில் இணைக்கப்படுவர். விருப்பமில்லையென்றால் எந்நேரமும் விலகிக் கொள்ளலாம். இதனால் ஆராய்ச்சிக்கு எந்தவித பாதிப்பும் ஏற்படாது.

முடிவுகளை அல்லது கருத்துக்களை வெளியிடும் போது தங்களின் பெயரையோ அல்லது அடையாளங்களையோ வெளியிட மாட்டோம் என்பதை தெரிவித்துக் கொள்கிறோம்.

ஆராய்ச்சியாளர் கையொப்பம் பங்கேற்பாளர் கையொப்பம்

தேதி : தேதி :

CODING SHEETS

Control group-pre-test (Demographic variables)

Sample	Age in years	Educational status	Occupation	Monthly income	Religion	Residence	Type of family
1	B	D	A	C	A	C	B
2	A	D	A	B	A	C	A
3	B	B	A	B	A	A	B
4	A	C	A	B	A	B	A
5	A	D	A	C	A	B	A
6	A	C	A	B	B	A	A
7	B	B	A	B	A	A	B
8	B	A	C	A	B	B	A
9	B	A	B	A	A	B	A
10	B	A	B	A	A	A	A
11	A	B	A	A	A	A	B
12	B	C	C	B	A	B	B
13	C	C	A	A	C	B	A
14	B	D	A	B	A	C	B
15	B	B	A	A	A	A	B
16	C	A	A	A	A	A	B
17	A	C	A	A	C	B	A
18	B	C	A	A	C	A	B
19	B	C	A	B	A	B	B
20	C	D	C	A	A	C	A
21	B	B	A	A	A	A	B
22	A	A	A	A	A	A	B
23	B	C	A	B	C	B	A
24	B	B	A	A	B	B	B
25	C	B	A	A	B	B	B
26	C	A	A	A	A	A	B
27	A	D	C	B	A	C	A
28	B	B	A	A	B	B	B
29	A	A	A	A	A	A	B
30	B	B	A	A	A	A	B

Control group-pre-test (obstetric variables)			
Sample No	Gravida	Gestational age	Consumption of iron tablets
1	A	B	a
2	A	B	A
3	A	C	A
4	A	C	A
5	A	A	A
6	A	C	A
7	B	B	A
8	A	B	B
9	B	A	A
10	B	A	A
11	A	B	A
12	B	B	A
13	A	B	A
14	B	C	A
15	B	C	B
16	B	B	A
17	A	B	A
18	A	B	A
19	A	A	A
20	A	B	A
21	A	A	A
22	A	A	A
23	B	C	A
24	A	A	A
25	B	C	B
26	B	B	A
27	A	C	A
28	A	A	A
29	A	A	A
30	A	C	A

Control group-pre-test (Personal variables)

Sample No	Bowel habits	Fluid intake	Dietary pattern	Daily activities	Knowledge of health benefits of honey	Relief measures
1	A	C	A	A	A	A
2	A	C	C	C	A	C
3	A	C	C	C	A	C
4	A	C	C	A	B	A
5	A	C	C	C	A	C
6	B	A	B	B	A	A
7	B	C	B	A	A	A
8	B	A	C	C	A	B
9	C	C	C	C	B	A
10	C	A	C	B	A	C
11	B	B	B	B	B	A
12	B	B	C	A	A	A
13	A	C	C	B	B	C
14	A	C	C	B	A	B
15	A	B	B	B	A	A
16	B	B	C	C	A	C
17	B	C	B	B	B	A
18	B	C	C	C	B	A
19	A	B	A	A	A	A
20	A	C	C	B	B	A
21	B	A	C	C	A	A
22	B	B	B	C	B	C
23	A	B	C	C	A	A
24	B	B	B	C	A	A
25	B	A	C	C	A	A
26	B	B	C	C	A	C
27	B	C	A	B	A	B
28	A	C	C	A	A	B
29	A	A	A	C	B	C
30	A	A	A	C	B	A

Experimental group-pre-test (Demographic variables)

Sample	Age in years	Educational status	Occupation	Monthly income	Religion	Residence	Type of family
1	A	D	A	B	A	A	A
2	A	C	A	B	A	A	A
3	B	C	A	B	A	B	A
4	B	C	A	A	A	C	A
5	A	C	A	B	A	A	A
6	B	C	A	B	A	B	A
7	B	C	A	C	A	C	A
8	A	B	A	C	B	B	A
9	B	D	A	C	C	A	B
10	A	C	A	B	A	B	B
11	A	C	A	B	A	A	A
12	D	B	A	B	A	A	B
13	B	A	A	A	A	A	A
14	B	D	A	C	A	B	A
15	A	C	A	B	A	C	B
16	A	B	A	B	A	B	B
17	A	D	A	A	A	C	B
18	A	C	A	C	A	C	B
19	A	C	A	B	A	C	A
20	B	B	A	B	A	A	A
21	A	C	A	B	A	C	A
22	A	C	A	C	A	C	B
23	A	B	A	A	B	C	A
24	B	D	A	A	A	A	A
25	B	C	A	A	A	B	B
26	B	D	A	A	A	A	A
27	A	C	A	B	C	A	B
28	B	C	A	A	A	B	A
29	B	D	A	A	A	C	A
30	B	B	A	A	A	B	A

Experimental group-pre-test (Obstetric variables)

Sample No	Gravida	Gestational age	Consumption of iron tablets
1	A	B	B
2	B	C	A
3	B	C	B
4	B	A	A
5	B	B	B
6	A	A	A
7	B	B	A
8	B	B	A
9	B	C	A
10	A	B	A
11	A	B	A
12	B	C	A
13	B	B	A
14	A	B	A
15	A	B	A
16	B	A	A
17	A	C	A
18	B	C	A
19	B	C	A
20	B	C	A
21	B	C	A
22	B	A	A
23	B	B	A
24	A	C	A
25	A	C	A
26	A	C	A
27	A	A	A
28	A	A	A
29	A	A	A
30	B	C	A

Experimental group-pre-test (Personal variables)

Sample No	Bowel habits	Fluid intake	Dietary pattern	Daily activities	Knowledge of health benefits of honey	Relief measures
1	B	A	C	C	B	A
2	B	B	C	C	A	C
3	A	C	C	C	B	C
4	A	C	A	C	A	A
5	A	B	C	C	A	A
6	A	C	C	C	B	C
7	B	C	C	C	A	C
8	A	A	C	C	A	A
9	B	C	C	B	A	A
10	A	C	C	C	B	A
11	B	B	C	C	B	A
12	B	B	B	B	A	C
13	A	B	C	C	A	C
14	A	C	C	A	A	A
15	A	C	C	B	A	C
16	B	B	C	C	B	A
17	A	C	C	B	A	A
18	A	C	C	A	A	A
19	A	C	C	C	A	A
20	A	B	C	C	A	C
21	B	B	C	C	B	A
22	B	C	C	A	A	A
23	A	C	C	B	A	C
24	A	C	C	A	A	A
25	B	B	B	B	B	C
26	A	C	C	A	A	A
27	A	C	C	A	A	A
28	A	C	C	A	B	A
29	A	C	C	A	A	C
30	A	C	C	A	B	A

Constipation score based on constipation assessment scale

Experimental group

Sample	Pre-test	Post- test
1	12	3
2	10	2
3	17	9
4	11	2
5	11	2
6	9	2
7	16	9
8	10	2
9	12	2
10	9	0
11	9	1
12	16	9
13	8	0
14	9	0
15	10	2
16	12	3
17	9	2
18	12	2
19	16	9
20	9	0
21	10	1
22	17	9
23	8	0
24	13	2
25	10	1
26	10	0
27	8	0
28	18	9
29	9	0
30	9	0

Control group

Sample	Pre-test	Post -test
1	9	6
2	9	5
3	8	4
4	15	9
5	12	9
6	12	9
7	10	5
8	11	5
9	12	9
10	14	9
11	8	4
12	8	4
13	13	9
14	12	9
15	9	5
16	12	8
17	10	5
18	13	9
19	13	9
20	10	6
21	12	9
22	14	8
23	8	4
24	10	6
25	9	5
26	9	4
27	9	4
28	9	4
29	12	9
30	9	5

Pre - assessment experimental group

SI NO	ITEMS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	1	2	1	3	1	2	1	2	2	2	1	0	2	1	1	0	2	0	1	1	1	1	3	0	2	2	1	1	2	1	0
2	2	0	0	0	1	0	0	1	1	1	0	0	0	0	0	1	2	0	1	1	1	1	2	1	0	0	1	0	1	0	0
3	3	2	1	3	1	1	1	2	0	1	2	2	2	1	0	2	1	2	2	2	2	2	2	1	2	1	2	1	2	2	2
4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	5	3	3	3	3	3	3	3	3	3	2	2	3	2	3	2	3	3	2	3	2	2	3	2	3	2	2	2	4	2	2
6	6	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2	1	0	0	2	0	3	0	0	0	1	0	0
7	7	3	3	3	2	3	2	3	2	3	2	3	4	2	2	3	2	2	2	3	1	2	3	2	0	3	2	2	3	2	3
8	8	2	2	3	3	2	2	3	2	2	2	2	3	2	3	2	2	2	2	3	2	2	2	2	3	2	2	2	3	2	2
Total		12	10	15	11	11	9	15	10	12	9	9	15	8	9	10	12	9	12	14	9	10	17	8	13	10	10	8	16	9	9

Post assessment experimental group

SI NO	ITEMS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	1	1	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
2	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	3	0	0	2	0	1	1	2	1	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	5	1	1	2	1	1	0	2	0	0	0	0	2	0	0	1	1	0	1	2	0	1	2	0	1	1	0	0	3	0	0
6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	7	2	1	2	1	2	1	2	1	0	0	0	3	0	0	0	1	1	1	2	0	0	3	0	0	0	0	0	3	0	0
8	8	1	0	1	0	0	0	2	0	0	0	0	2	0	0	1	1	0	1	2	0	0	2	0	0	0	0	0	3	0	0
Total		3	2	9	2	4	2	9	2	2	1	0	9	0	0	2	3	1	3	6	0	1	9	0	2	1	0	0	9	0	0

Pre assessment control group

SI NO	ITEMS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	1	1	1	1	2	1	1	1	1	1	2	1	0	2	1	1	1	1	2	2	1	1	0	0	1	0	0	0	0	1	0
2	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	3	1	1	0	3	2	1	1	1	2	2	1	0	1	1	0	1	1	1	1	1	2	2	1	1	2	1	0	1	1	0
4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	5	2	2	3	4	3	4	3	3	3	3	2	2	4	4	3	3	2	4	3	2	3	4	2	3	2	3	3	3	4	4
6	6	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7	7	2	3	2	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	3	3	3	3
8	8	3	2	2	3	3	3	2	2	3	3	3	3	3	3	2	3	3	3	4	3	3	4	3	3	3	3	3	2	3	2
Total		9	9	8	15	12	12	10	11	12	14	8	8	13	12	9	12	10	13	13	10	12	14	8	10	9	9	9	9	12	9

Post assessment control group

SI NO	ITEMS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	1	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	0	0	0	1	0
4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	5	2	1	2	3	3	3	1	2	3	2	1	0	3	3	2	3	2	3	2	2	3	2	2	2	2	2	1	2	2	2
6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	7	2	2	1	3	3	3	2	2	2	3	1	2	3	3	2	3	1	2	2	2	3	3	1	2	1	1	1	1	3	1
8	8	2	2	1	3	3	3	1	1	2	3	2	2	3	3	1	2	1	2	2	2	3	3	1	2	1	1	2	1	3	2
Total		6	5	4	9	9	9	5	5	9	9	4	4	9	9	5	8	5	9	8	6	9	8	4	6	5	4	4	4	9	5

CERTIFICATE OF ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation topic **"A study to assess the effectiveness of honey on constipation among antenatal mothers in third trimester admitted in Institute of Obstetrics and Gynaecology and Govt hospital for women and children, Chennai ."** done by

Mrs. Kaliyaperumal Ananthi, II year, Msc (N) student, College of Nursing, Madras Medical College, Chennai, has been edited for English language appropriateness.

D. Ramya 1.2.16

[D. RAMYA SREE]

PGT English

Date : 1.2.16

Place: Chennai

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